

H10992

NOAA FORM 76-35A	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT	
Type of Survey	Navigable Area
Registry No.	H10992
LOCALITY	
State	Massachusetts
General Locality	Massachusetts Bay
Sub-locality	The Graves To Cohasset Harbor
2001	
CHIEF OF PARTY CDR Steven R. Barnum, NOAA	
LIBRARY & ARCHIVES	
DATE	

NOAA FORM 77-28 (11-72) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER: <div style="text-align: center; font-size: 1.2em; font-weight: bold;">H10992</div>																																																												
<div style="font-size: 1.5em; font-weight: bold; margin: 0;">HYDROGRAPHIC TITLE SHEET</div>																																																													
INSTRUCTIONS: The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.																																																													
<table style="width: 100%; border: none;"> <tr> <td style="width: 20%;">State:</td> <td colspan="3">Massachusetts</td> </tr> <tr> <td>General Locality:</td> <td colspan="3">Massachusetts Bay</td> </tr> <tr> <td>Sub-Locality:</td> <td>The Graves to Cohasset Harbor</td> <td style="text-align: right; color: red;">10/30/01</td> <td></td> </tr> <tr> <td>Scale:</td> <td>1:10,000</td> <td>Date of Survey:</td> <td>7/27/01 to 10/27/01</td> </tr> <tr> <td>Instructions Dated:</td> <td>8/30/00</td> <td>Project Number:</td> <td>OPR-A397-WH</td> </tr> <tr> <td>Vessel:</td> <td colspan="3">NOAA Ship WHITING, S-329</td> </tr> <tr> <td>Chief of Party:</td> <td colspan="3">CDR Steven R. Barnum, NOAA</td> </tr> <tr> <td>Surveyed by:</td> <td colspan="3">WHITING Personnel</td> </tr> <tr> <td>Soundings by:</td> <td colspan="3">Odom Echotrac DF3200 MK II Echosounder</td> </tr> <tr> <td></td> <td colspan="3">Reson SeaBat 8101 multibeam sonar</td> </tr> <tr> <td>Graphic record scaled by:</td> <td colspan="3">WHITING Personnel</td> </tr> <tr> <td>Graphic record checked by:</td> <td colspan="3">WHITING Personnel</td> </tr> <tr> <td>Protracted by:</td> <td>N/A</td> <td>Automated Plot:</td> <td>HP-750C</td> </tr> <tr> <td>Verification by:</td> <td>Atlantic Hydrographic Branch</td> <td style="color: red;">Personnel</td> <td style="color: red;">HP-2500CP</td> </tr> <tr> <td>Soundings in:</td> <td colspan="3">Meters at MLLW</td> </tr> </table>		State:	Massachusetts			General Locality:	Massachusetts Bay			Sub-Locality:	The Graves to Cohasset Harbor	10/30/01		Scale:	1:10,000	Date of Survey:	7/27/01 to 10/27/01	Instructions Dated:	8/30/00	Project Number:	OPR-A397-WH	Vessel:	NOAA Ship WHITING, S-329			Chief of Party:	CDR Steven R. Barnum, NOAA			Surveyed by:	WHITING Personnel			Soundings by:	Odom Echotrac DF3200 MK II Echosounder				Reson SeaBat 8101 multibeam sonar			Graphic record scaled by:	WHITING Personnel			Graphic record checked by:	WHITING Personnel			Protracted by:	N/A	Automated Plot:	HP-750C	Verification by:	Atlantic Hydrographic Branch	Personnel	HP-2500CP	Soundings in:	Meters at MLLW		
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Remarks: <i>1) All Times are UTC.</i> <i>2) This is a basic Hydrographic Survey.</i> <i>3) Projection is UTM Zone 19.</i> <div style="color: red; font-style: italic;">Notes in the Descriptive Report in bold, red, italic were made during office processing.</div>																																																													

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Descriptive Report

to accompany
Hydrographic Survey H10992

Scale of Survey: 1:10,000
Year of Survey: 2001
NOAA Ship WHITING
CDR Steven R. Barnum
Commanding Officer

A. AREA SURVEYED

This hydrographic survey was conducted in accordance with Hydrographic Survey Letter Instructions for project OPR-A397-WH, Approaches to Boston, Massachusetts. The instructions are dated August 30, 2000. Change No. 1 dated June 28, 2001 updated tide requirements for this survey.

This Descriptive Report pertains to sheet "C" of project OPR-A397-WH, which includes The Graves to Cohasset Harbor. The assigned registry number for this sheet, as prescribed in the Letter Instructions, is H10992.

For complete survey limits, see the chart on the following page.

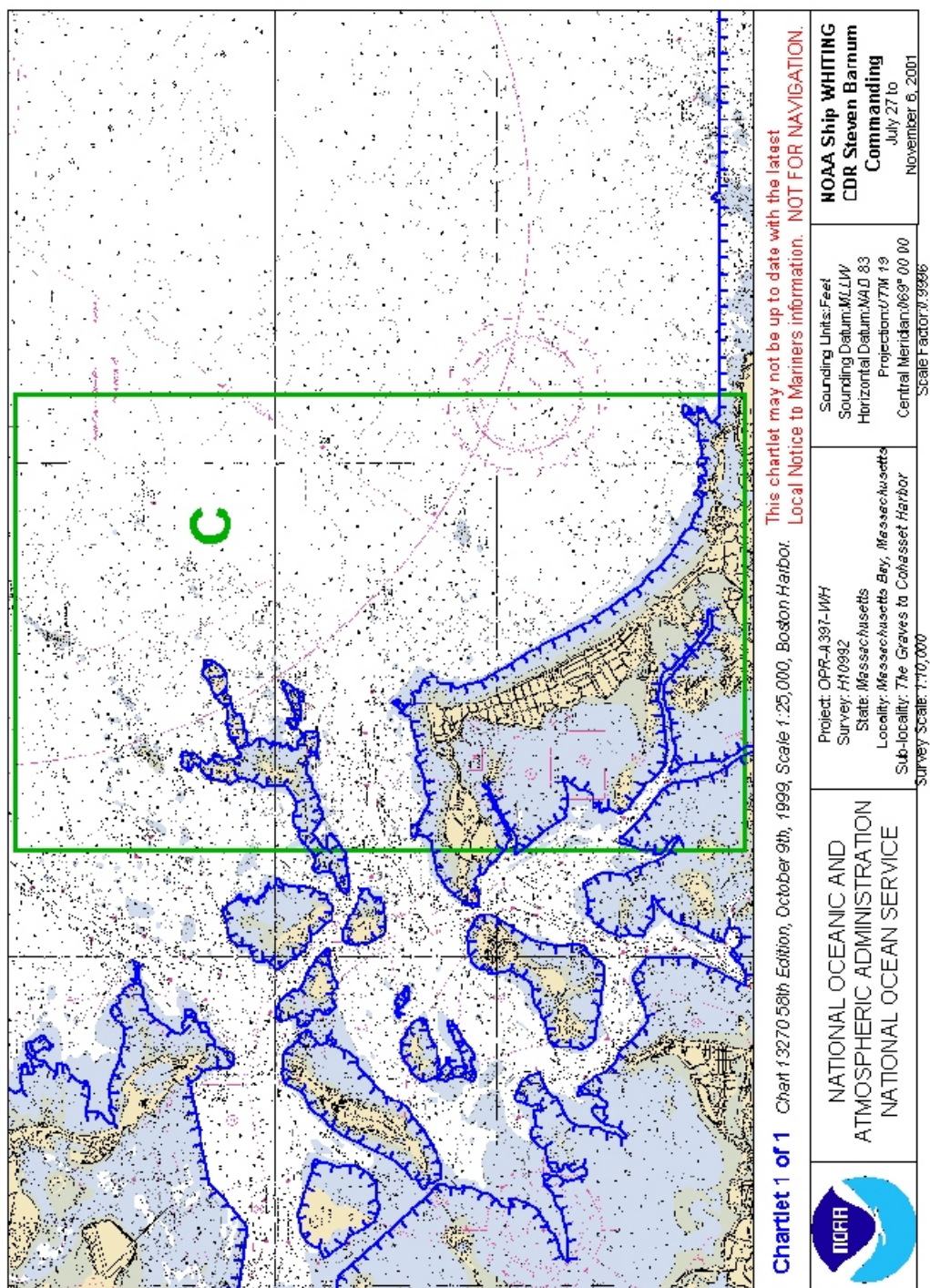


Figure 1: Survey H10992; Boston Sheet C, The Graves to Cohasset Harbor Chartlet.

B. DATA ACQUISITION AND PROCESSING

EQUIPMENT

Data were acquired by the NOAA Ship WHITING and NOAA Ship WHITING's Launch 1005 and Launch 1014. These launches are NOAA's standard 8.5-meter aluminum Jensen vessel with a typical 0.5-meter transducer draft.

NOAA Ship WHITING acquired Side Scan Sonar (SSS) data, Vertical Beam Echosounder data (VBES)*, and sound velocity data. Side scan sonar data were acquired with a towed Klein System 5000 High Speed/High Resolution Side Scan Sonar (HSHRSSS) and VBES data was acquired with an Odom Echotrac DF3200 MKII echosounder. Positioning was determined with a Trimble DSM212L integrated differential GPS receiver. Attitude data was determined using a TSS DMS-05 attitude sensor. Velocity casts were conducted with SeaBird SeaCat CTD instruments.

Launch 1005 acquired VBES, shallow-water multibeam (SWMB), and sound velocity data. Equipment for VBES data acquisition was as described above. A Reson SeaBat 8101 multibeam system was used for SWMB hydrography. All positioning and attitude were determined with a TSS POS/MV 320 (version 2) GPS-aided inertial navigation system. Side scan sonar data were acquired with an Edgetech 272 towed side scan sonar. Velocity casts were conducted with SeaBird SeaCat CTD instruments.

Launch 1014 acquired VBES data and side scan sonar data; and was also used for dive investigations. Equipment for VBES data acquisition was as described above. Side scan sonar data were acquired with an Edgetech 272 towed side scan sonar. Positioning was determined with a Trimble DSM212L integrated differential GPS receiver. Attitude data were determined using a TSS DMS-05 attitude sensor.

NOAA Ship WHITING and Launch 1014 acquired detached positions (DP) and bottom samples. No unusual vessel configurations or problems were encountered. Refer to the Data Acquisition and Processing Report (DAPR)** for detailed equipment and vessel configuration information.

***** Data filed with original field records***

* NOTE: Launch 1005 VBES data were not processed when SWMB data were acquired.

QUALITY CONTROL *See also the Evaluation Report***Side Scan Sonar Quality Control**

Daily confidence checks were made by observing the outer ranges of the side scan sonar images. A good check consisted of distinguishing contacts (lobster pots) or sand waves across the entire range of the side scan trace. No unusual problems were encountered.

Shallow Water Multibeam Quality Control

There were no faults with the SWMB system which affected data integrity. Refer to this project's DAPR * for detailed discussion of SWMB system calibrations, data acquisition, and data processing.

A histogram was created showing the distribution of soundings on the preliminary smooth sheet based on their beam number (Figure 1). The spikes in this histogram seen in the outer beams (beams 10-15 and 85-90) illustrate a statistical tendency of shoal biasing algorithms. Refractions due to temperature, salinity and pressure differences in the water column primarily influence the outer beams. These refraction often caused the outer beams to appear more shoal than the inner beams. Shoal biasing preferentially chooses the beams most susceptible to refraction and ray tracing errors. The errors were typically small or even imperceptible to the hydrographer, and well within the sonar's error budget.

Crosslines

Over thirty nine miles of VBES crosslines comprising 13% of the mainscheme data were acquired. Crossline and mainscheme comparisons were made in MAPINFO 6.5. For the crossline comparisons, the preliminary smooth sheet soundings from narrow regions (<100 meters) around the crosslines were obtained and compared in Microsoft Excel graphs to the crossline soundings (See Separates V, ** Shallow Water Multibeam Crossline Comparison). No differences greater than five percent were observed. Differences, where observed were one meter or less, or could be attributed to dynamically variable topography.

Junctions

Junction comparisons were made with prior survey H10994, Boston Sheet E and prior survey H10991, Boston Sheet B (both conducted by NOAA Ship WHITING). Survey H10994, Boston Sheet E coincides with the northwest section of Boston Sheet C. A difference map of the overlapping regions was generated with MapInfo's Vertical Mapper program. The difference map results are as follows: 77.5% of soundings for survey H10992 soundings were ± 1 foot of soundings for survey H10994; 21.5% of soundings for survey H10992 soundings were ± 3 foot of soundings for survey H10994; 1.0% of soundings for survey H10992 soundings were ± 6 foot of soundings for survey H10994, noted in areas of large topographical expressions.

* *DAPR is being kept at the processing branch.*

** *Data filed with original field records*

Survey H10991, Boston Sheet B overlaps with the western section of Boston Sheet C. (this report) Two difference maps of the overlapping regions were generated with MapInfo's Vertical Mapper program (one difference map of the west-northwest overlapping region and one difference map of the west-central overlapping region). The difference map results for the west-northwest region are as follows: 34.8% of soundings for survey H10992 soundings were ± 1 foot of soundings for survey H10991; 49.5% of soundings for survey H10992 soundings were ± 3 foot of soundings for survey H10991; 15.7% of soundings for survey H10992 soundings were ± 6 foot of soundings for survey H10991. The difference map results for the west-central region are as follows: 23.4% of soundings for survey H10992 soundings were ± 1 foot of soundings for survey H10991; 34.0% of soundings for survey H10992 soundings were ± 3 foot of soundings for survey H10991; 19.8% of soundings for survey H10992 soundings were ± 6 foot of soundings for survey H10991; 22.8% of soundings for survey H10992 soundings were ± 18 foot of soundings for survey H10991. The differences noted between these two surveys were in areas of large topographical expressions and represent comparisons between SWMB data for survey H10992 and vertical beam data for survey H10991.

CORRECTIONS TO ECHO SOUNDING

All methods and instruments were used as described in the project DAPR.* A table detailing all sound velocity casts is located in Separate III. ** *Data filed with original field records*

Beam Distribution

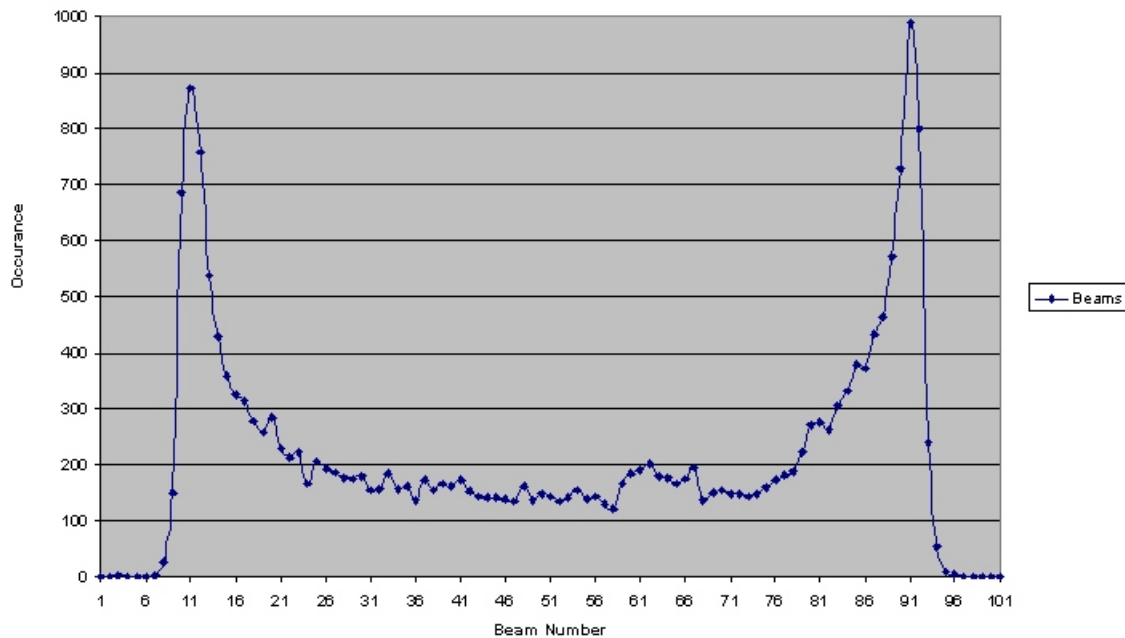


Figure 2: Final depth data distribution by beam number.

C. VERTICAL AND HORIZONTAL CONTROL *See also the Evaluation Report*

VERTICAL CONTROL

The tidal datum for this project is Mean Lower Low Water (MLLW). The operating tide station at Boston, MA (844-3970) served as control for datum determination. Tertiary gauges at Boston Light, MA (844-4162) and Nut Island Light, MA (844-4525) provided ancillary tide data. *Approved tides and zones were reapplied in CARIS to the survey data during office processing.*

Tidal zoning for this survey is consistent with the Letter Instructions. The zones used for this survey are as follows:

STATION	CORRECTOR (min)	RATIO	REFERENCE
ATL204	0	x0.95	844-3970
ATL201	-6	x0.93	844-3970
BOS6	0	x0.96	844-3970
BOS7	0	x0.97	844-3970
BOS8	+6	x0.99	844-3970

A Request for Approved Tides letter was sent to N/OPS1 on November 9, 2001 (Appendix IV).^{*} Verified tides from the N/OPS1 CO-OPS website were downloaded on October 18, 2001, and applied to all sounding data.

HORIZONTAL CONTROL *See also the Evaluation Report*

The horizontal datum used for this survey is the North American Datum of 1983 (NAD 83), projected using UTM zone 19.

Sounding positional control was determined using the Global Positioning System (GPS) corrected by U.S. Coast Guard differential GPS (DGPS) beacon stations. The primary DGPS beacon used for this survey was Chatham, MA, and the secondary DGPS beacon was Portsmouth, NH. Horizontal control stations were not used for this survey.

The horizontal dilution of precision (HDOP) and the positional dilution of precision (PDOP) were monitored daily on both launches. Neither value exceeded 4.00, and adequate satellite coverage was maintained throughout the survey period. All positioning equipment was operated in a manner consistent with the manufacturers requirements and as described in the DAPR. ^{*} There were no equipment malfunctions that affected the positional quality of the data. *^{*} Data filed with original field records*

0D. RESULTS AND RECOMMENDATIONS *See also the Evaluation Report*

CHART COMPARISON

There are five charts affected by this survey:

13267, 29th edition, February 28, 1998, 1:80,000
13270, 58th edition, October 9, 1999, 1:25,000
13275, 27th edition, July 24, 1999, 1:25,000
13009, 29th edition, July 14, 2001, 1:500,000
13260, 37th edition, July 03, 1999, 1:378,838

General Agreement with Charted soundings

The Graves to Cohasset Harbor

Eighty percent of charted depths within this survey were within ± 1.5 feet of the survey soundings acquired from the survey operations. Of the remaining twenty percent, 9.2% of charted depths were deeper than survey soundings and 10.8 % of charted depths were more shoal than survey soundings. Discrete differences in depths are addressed in the “Dangers to Navigation” and “Charted Features” sections.

Due to the complexity of the survey area, a difference map was generated to facilitate interpretation (Figure 5). The chart was generated by MapInfo’s Vertical Mapper program. For the difference map, a depth file with the charted depths was generated and compared to the depth file generated from the survey soundings for this survey. Both depth files were tinned with side lengths that would allow for complete coverage of the survey area. The charted depths tinned grid was then subtracted from the survey soundings tinned grid, producing the difference map. On the difference map, red shades indicate current survey soundings that are shoal compared to charted depths and blue shades indicate current survey soundings that are deeper than the charted depths.

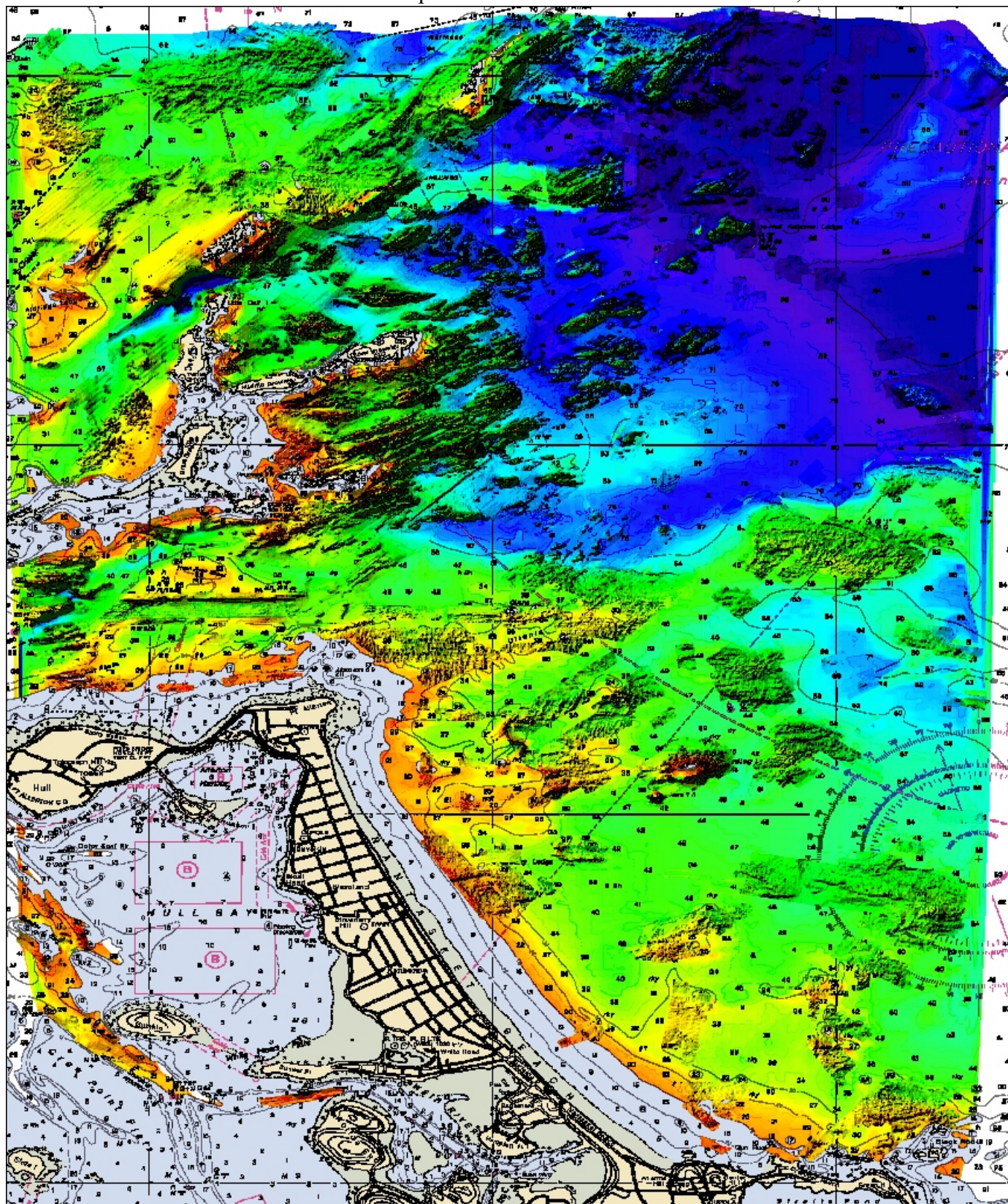


Figure 3: H10992 Boston Sheet C Surface created with MapInfo's Vertical Mapper program. Surface was generated from tinned grid of final depth sounding file. Surface is overlain by Chart 13270. Chart is overlain by 3 meter grid DTM generated by Caris/NT.

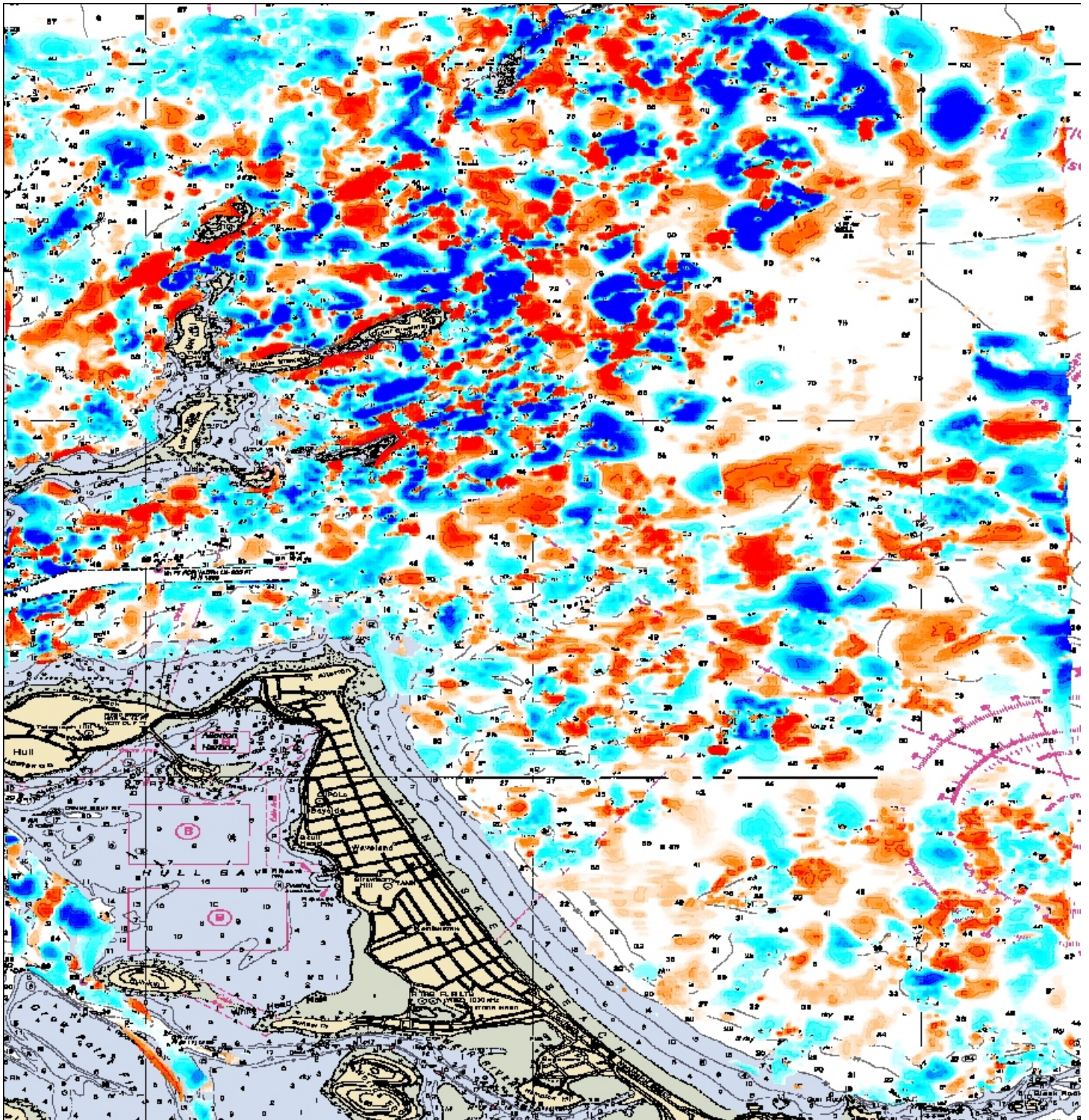


Figure 4: H10992 Boston Sheet C Difference Chart. Difference map was generated through MapInfo's Vertical Mapper program. A tinned grid of the charted depths was subtracted from a tinned grid of survey soundings with GridMath to produce the chart. Red shades indicate areas where charted depths are deeper than survey soundings. Blue shades indicate areas where charted depths are shallower than survey soundings. Difference map is overlaying Chart 13270.

The Brewster Islands, Calf Island, Green Island, The Graves, and points Northeast

The most significant differences between the charted depths and the survey soundings for the Boston Sheet C survey existed east and northeast of the island chain of The Brewster Islands, Calf Island, Green Island, and The Graves. The characterizations for this area are very generalized due to the extreme variation exhibited by the sea floor (Figure 3). With the exception of The Graves, charted depths were generally deeper than current survey soundings in close proximity to the islands (Figure 4). Between the islands and to the east, there are many shoal features, according to current survey soundings (Figure 4). Charted depths for The Graves were generally more shoal than survey soundings close to the island, and deeper than survey soundings away from the island. There are numerous small features that were not uncovered by previous surveys of this area. Many of the small features are glacial erratics, and many of the larger features are SW/NE oriented trends. These features, where they differ from charted depths, show up in red on the difference map (Figure 4).

There are three large difference features on the difference map at The Martin Ledge, The Three and One Half Fathoms Ledge, and at Tewksbury Rock, (large blue features on Figure 4). These features are products of the tinning process that was used to generate the difference map. The topographic features that are being imaged are not laterally extensive in the north/south direction and have sheer drops on those sides (Figure 3). The charted depth data density is much lower than the current survey sounding density, and is unable to represent sudden horizontal variations. This is reflected on the difference map as charted depths that are more shoal than survey soundings, when it actually represents limited charted depth information. These features are not considered for interpretation.

The region east of the island chain of the Brewster Islands, Calf Island, Green Island, and The Graves displayed significant differences between the charted depths and the survey soundings. This is most likely due to the significant variations of the sea floor topography. The difference map was shown to be challenged in properly representing the differences between charted depths and survey soundings in areas of dramatic variations in bottom topography.

West of Great Brewster, Maffit Ledge, Roaring Bulls, and points Northwest

The charted depths compared reasonably well with the survey soundings for this area with a few notable exceptions. The Boston South Channel lies in this furthest northwest region of the survey area. There were two DTON's identified near the channel, (they are described in depth in the DTON section of this descriptive report). The difference map (Figure 4) displayed charted depths around The Devil's Back, the Commissioner's Ledge on the Channel side, and The Maffit Ledge that were more shoal than survey soundings. These shoal differences are artifacts of the tinning process similar to previous artifacts noted. The difference map did represent numerous significant depths along the Devil's Back and Commissioner's Ledge (identified in red on the difference map). The difference map (Figure 4) identifies areas at The Hypocrite Channel around Halftide Rock, and areas between Aldridge Ledge and Calf Island with charted depths that are deeper than survey soundings, as well as a trend that extends

from the tip of Green Island to the north side of the South Channel entrance. There is another trend on the western side of The Graves and the Roaring Bulls with charted depths that are deeper than survey soundings.

The difference map showed charted depths for the region west of Great Brewster Island, Maffit Ledge, and the Roaring Bulls to be more shoal overall than survey soundings, with the exception of the Hypocrite Channel. However, this region requires close scrutiny since it contains numerous wrecks that will be discussed in the AWOIS section of this descriptive report.

Nantasket Roads and east between Boston Ledge and Ultonia Ledge, and between The Three and One Half Fathoms Ledge and Thieves Ledge

The survey soundings for The Nantasket Roads Channel confirmed that the channel is cleared to 35 feet, as stated on the chart. There were, however, shoals identified north and south of the channel. South of Kelly Rock, just north of the channel, and south of the channel in the identified cable area were identified shoals (Figure 4) that were classified as DTON's (see DTON section of this descriptive report). South of the Kelp Ledges is a shoal trend that is not identified by the chart, and south of the channel, charted depths on Hunt Ledge were also found to be deeper than survey soundings.

Numerous DTON's were identified on the eastern approach to the Nantasket Roads Channel between the Boston Ledge and Ultonia Ledge. Near Shag Rock and Boston Ledge, the difference map identified charted depths that are deeper than survey soundings. Elsewhere, smaller shoal features were found.

Slightly north and east of Thieves Ledge, a large area was identified where charted depths were found to be deeper than survey soundings. This is the only major difference noted between the charted depths and the survey soundings in the region north and east of the Thieves Ledge and south of the Three and One Half Fathoms Ledge.

Although numerous charting discrepancies were identified in the region of Nantasket Roads and points directly east, differences between the charted depths and the current survey soundings were fewer in number and less in magnitude than in the previous regions examined.

Hingham Bay, and Nantasket Beach north to Ultonia Ledge and Thieves Ledge

Numerous significant contacts were identified in the Hingham Bay and Weir River area. The variations between charted depths and survey soundings for this area are likely due to sediment transport. The Bumpkin Shoal displays the largest shoal difference (Figure 4).

The area north of Nantasket beach and south of the Ultonia Ledge and Thieves Ledge contains only one significant topographic feature, the Harding Ledge. There are, however, numerous significant contacts north and west of the Harding Ledge. These items represent mostly glacial erratics, which litter the sea floor.

The region of Hingham Bay, and between Nantasket Beach and Ultonia and Thieves Ledges was quite well represented by the chart. The sea floor displayed low relief, with the exception of the Harding Ledge. Erratics are numerous in this region that are considered significant contacts, but no DTON's were identified.

AWOIS Item Investigations

There were twenty-four AWOIS items within the survey limits. The following are discussions of each item.

H10992

NOAA Ship WHITING

March 13, 2002

AWOIS: 2,047

Item Description: Unidentified wreck with a wire-drag clearance of 22 ft. (6.7 m).

Source: H6609/40 WD-HT-246, 24 NO. 243

Item Position: Lat: 42° 18' 57.35" N, Lon: 070° 51' 34.06" W

Required Investigation: SD, S2, SWMB, DI

Radius: 200 m

Charts Affected: 13270

INVESTIGATION

Contact No: N/A

Date(s): DN263, DN285, DN286, DN287, DN300

Least Depth Position Number: H10992_MB\05MB\2001-283\124_1429; Ping:348;
Beam:18

Investigation Used: 200% SSS and SWMB

Surveyed Position: Lat: 42° 18' 56.662" N, Lon: 070° 51' 36.382" W

Position Determined By: Differential GPS

Investigation Summary: 200% SSS coverage and approximately 40% SWMB coverage were acquired over the 200 m search radius of AWOIS 2047. No contacts were selected from the SSS data, nor was there any evidence of wreckage seen. The wreck appears by historical record to be the same as AWOIS 7838, the ship *KIOWA*. No contacts were selected from the SSS data.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the 22 ft. (6.7 m) wire drag at position Lat: 42° 18' 57.35" N, Lon: 070° 51' 34.06" W be removed and current survey soundings supercede. *Concur Delete 22 Wk wire drag clearance and danger curve*



H10992

NOAA Ship WHITING

March 13, 2002

AWOIS: 2,048

Item Description: Obstruction with a wire-drag clearance of 21 ft. (6.4 m).

Source: 24 NO. 1285

Item Position: Lat: 42° 19' 05.35" N, Lon: 070° 51' 54.16" W

Required Investigation: SD, S2, SWMB, DI

Radius: 500 m

Charts Affected: 13270

INVESTIGATION

Contact No: N/A

Date(s): DN283

Least Depth Position Number: H10992_MB\05MB\2001-283\126_1406; Ping:1015;
Beam:60

Investigation Used: 200% SSS and SWMB

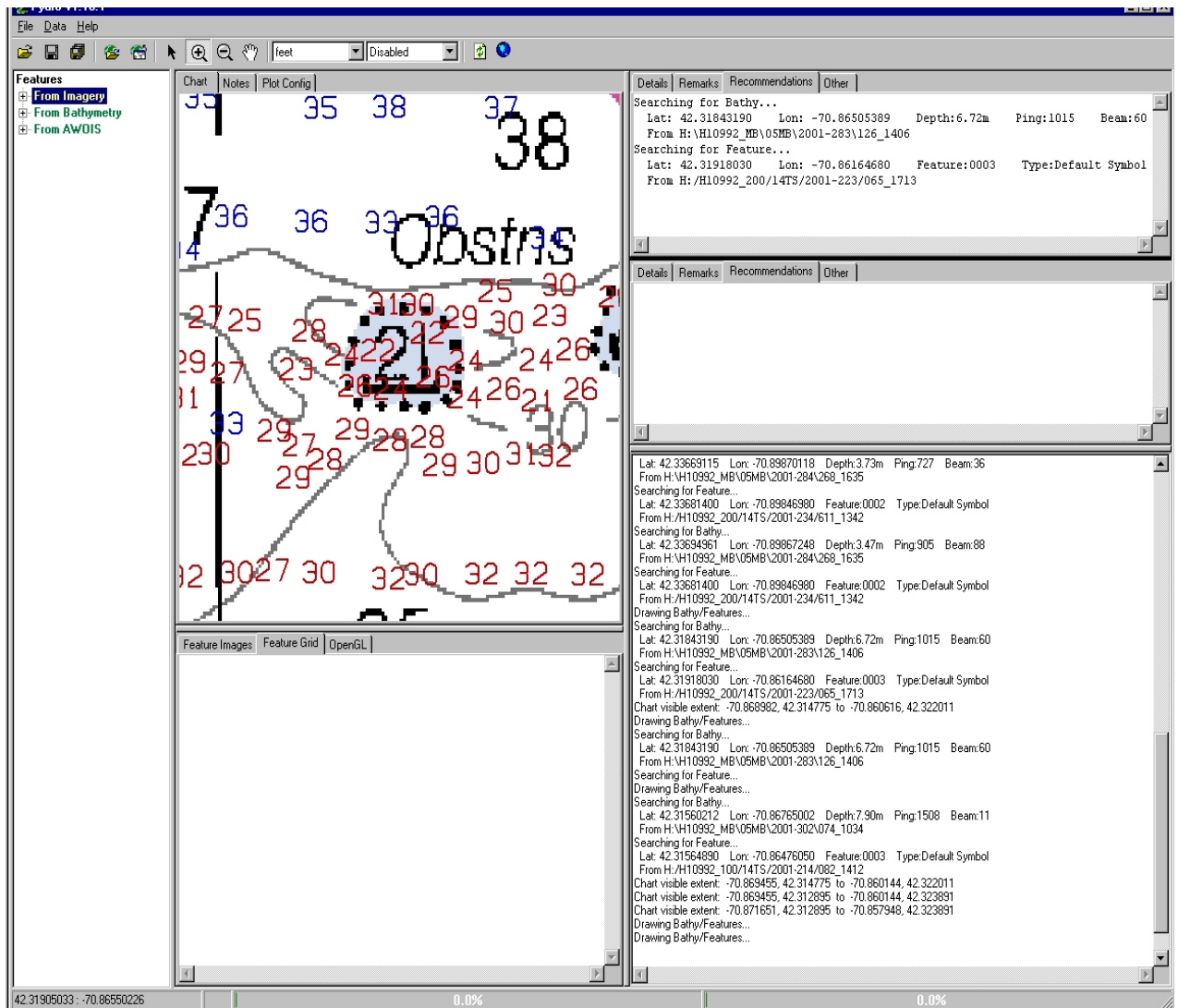
Surveyed Position: Lat: 42° 19' 06.355" N, Lon: 070° 51' 54.194" W

Position Determined By: Differential GPS

Investigation Summary: 200% SSS and approximately 35% SWMB coverage were acquired over the 500 m search radius for item 2,048. No contacts were selected from the SSS data and no substantiating evidence of an obstruction was seen.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the 21 ft. (6.4 m) wire drag in position Lat: 42° 19' 05.35" N, Lon: 070° 51' 54.16" W be removed and current survey soundings supercede. *Concur Delete 21 Obstns wire drag clearance and danger curve*



AWOIS: 2,049

Item Description: Unidentified obstruction hung at 22 ft. (6.7 m), cleared to 21 ft. (6.4 m), 21.5 ft. (6.6 m) LL LD, (may be boulders).

Source: H6609/40WD-HT-246

Item Position: Lat: 42° 19' 06.15" N, Lon: 070° 51' 53.86" W

Required Investigation: SD, S2, SWMB, DI

Radius: 250 m

Charts Affected: 13270

INVESTIGATION

Contact No: N/A

Date(s): DN283

Least Depth Position Number: H10992_MB\05MB\2001-283\126_1406; Ping:1015;
Beam:60

Investigation Used: 200% SSS and SWMB

Surveyed Position: Lat: 42° 19' 6.355" N, Lon: 070° 51' 54.194" W

Position Determined By: Differential GPS

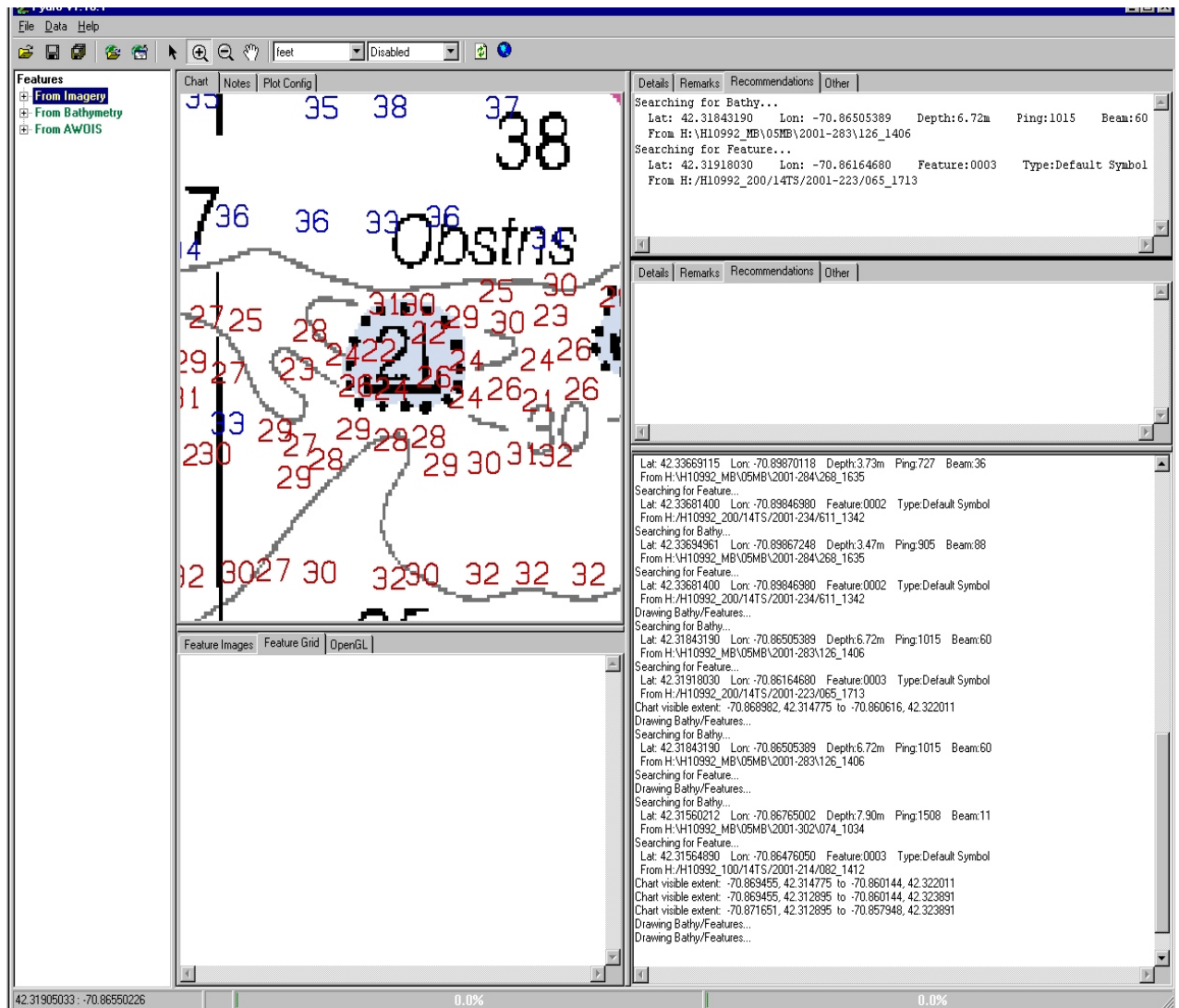
Investigation Summary: Same item as record 2,048. 200% SSS and approximately 30% SWMB coverage were acquired over the 250 m search radius for item 2,049. No contacts were selected from the SSS data and no substantiating evidence of an obstruction was seen.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the 21 ft. (6.4 m) wire drag in position Lat: 42° 19' 06.15" N, Lon: 070° 51' 53.86" W be removed and current survey soundings supercede. *Concur*

Same as AWOIS 2048

See AWOIS 2048, page 16 of this report for charting recommendation.



H10992

NOAA Ship WHITING

March 13, 2002

AWOIS: 2,050

Item Description: Unidentified obstruction with a wire drag clearance of 22 ft. (6.7 m).

Source: H6609/40WD-HT-246

Item Position: Lat: 42° 19' 06.75" N, Lon: 070° 51' 44.46" W

Required Investigation: SD, S2, DI

Radius: 250 m

Charts Affected: 13270

INVESTIGATION

Contact No: 065_1713_0003

Date(s): DN283

Least Depth Position Number: H10992_MB\05MB\2001-283\128_1413; Ping:478;
Beam:44

Investigation Used: 200% SSS and SWMB

Surveyed Position: Lat: 42° 19' 07.339" N, Lon: 070° 51' 44.008" W

Position Determined By: Differential GPS

Investigation Summary: 200% SSS and approximately 30% SWMB coverage were acquired over the 250 m search radius for item 2,050. A rock outcrop was identified by SWMB and from the SSS data, contact 065_1713_0003.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the 22 ft. (6.7 m) wire drag in position Lat: 42° 19' 06.75" N, Lon: 070° 51' 44.46" W be removed and current survey soundings supercede. Furthermore, the hydrographer recommends replacing charted "Obstruction" descriptor in position Lat: 42° 19' 06.15" N, Lon: 070° 51' 53.86" W with "Rocky". *Concur Delete 22 wire drag clearance and danger curve*



AWOIS: 2,051

Item Description: Uncharted wreck of Schooner *Annie Perry*. Reported sank in 1914, 1300 yards north of Point Allenton.

Source: 20 No. 1289

Item Position: Lat: 42° 19' 15.35" N, Lon: 070° 53' 01.16" W

Required Investigation: S2, DI

Radius: N/A

Charts Affected: 13270

INVESTIGATION

Contact No: N/A

Date(s): DN211, DN213, DN224

Least Depth Position Number: N/A

Investigation Used: 200% SSS and SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: 200% side scan sonar coverage and approximately 40% SWMB was acquired over the entire survey area. No contacts or manmade objects were identified from the SSS or SWMB data that match item 2,051 description.

CHARTING RECOMMENDATION

Recommendations: The hydrographer disproves the existence of AWOIS 2,051 within sheet limits of survey H10992. **Concur No change in charting recommended**

H10992

NOAA Ship WHITING

March 13, 2002

AWOIS: 2,055

Item Description: Uncharted wreck *Virginian* reported sank in March, 1895 near Boston.

Source: N/A

Item Position: Lat: 42° 20' 00.35" N, Lon: 070° 53' 58.16" W

Required Investigation: SD, S2, SWMB, DI

Radius: N/A

Charts Affected: 13270

INVESTIGATION

Contact No: N/A

Date(s): DN208 - DN303

Least Depth Position Number: N/A

Investigation Used: 200% SSS and 100% SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: 200% side scan sonar coverage and approximately 40% SWMB was acquired over the entire survey area. No contacts or manmade objects were identified from the SSS or SWMB data that match item 2,055 description.

CHARTING RECOMMENDATION

Recommendations: The hydrographer disproves the existence of AWOIS 2,055 within sheet limits of survey H10992. *Concur No change in charting recommended*

AWOIS: 2,084

Item Description: Schooner *Shag* sank 9/17/55. Thirty-five foot (10.7 m) long schooner wire drag cleared to 42 (12.8 m) and 61 ft. (18.6 m).

Source: NM38/1955(4256)–9/17/55, FOO206WD/1966, 24 NO. 1629, 230 NO. 37039

Item Position: Lat: 42° 22' 00.35" N, Lon: 070° 49' 25.16" W

Required Investigation: SD, S2, DI

Radius: 1000 m

Charts Affected: 13270

INVESTIGATION

Contact No: N/A

Date(s): DN211, DN213, DN277

Least Depth Position Number: N/A

Investigation Used: 200% SSS and SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: The 1000 m search radius for item 2,084 is not fully contained within the sheet limits of survey H10992. Of the portion of the search radius within sheet H10992 limits, 200% side scan sonar coverage and approximately 15% SWMB were acquired. No contacts were selected from the SSS data that match item 2,084 description.

Entire search radius was covered during present survey operations.

CHARTING RECOMMENDATION ***No contacts were determined.***

Recommendations: The hydrographer disproves the existence of AWOIS 2,084 in the portion of the search radius contained within sheet limits of survey H10992. ***Concur Delete sunken wreck, PA***

AWOIS: 2,081**Item Description:** Uncharted obstruction reported sunk 1937 by marine casualty.**Source:** 24 NO. 1296**Item Position:** Lat: 42° 21' 59.35" N, Lon: 070° 54' 36.17" W**Required Investigation:** SD, S2, VS, DI**Radius:** N/A**Charts Affected:** 13270

INVESTIGATION**Contact No:** N/A**Date(s):** DN208, DN209, DN225, DN236**Least Depth Position Number:** N/A**Investigation Used:** 200% SSS and SWMB**Surveyed Position:** N/A**Position Determined By:** Differential GPS**Investigation Summary:** 200% side scan sonar coverage and approximately 40% SWMB was acquired over the entire survey area. No contacts or manmade objects were identified from the SSS or SWMB data that match item 2,081 description.

CHARTING RECOMMENDATION**Recommendations:** The hydrographer disproves the existence of AWOIS 2,081 within sheet limits of survey H10992. *Concur No change in charting recommended*

AWOIS: 7,838

Item Description: Freight ship *Kiowa* sank in a snowstorm on 26 December, 1903. Struck on port side by SS Admiral Dewey. Sank with her masts and stack showing. Dynamited and cleared to 30 ft. (9.1 m). Ruins are flattened on bottom but rise 10 ft. (3.1 m). in some places. Oriented north-northeast to south-southwest. Loran C rates provided by Mr. Richard Taracka, Greenwich, CT Police Department. Wreck uncharted.

Source: N/A

Item Position: Lat: 42° 19' 20.41" N, Lon: 070° 51' 53.36" W

Required Investigation: SD, S2, VS, DI

Radius: 1000 m

Charts Affected: 13270

INVESTIGATION

Contact No: N/A

Date(s): DN214, DN223, DN283, DN300

Least Depth Position Number: H10992_MB\05MB\2001-283\128_1413; Ping:478; Beam:44

Investigation Used: 200% SSS and SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: 200% side scan sonar coverage and approximately 40% SWMB were acquired over the 1000 m search radius for item 7,838. No contacts were selected from the SSS data that match item 7,838 description. Local dive shops indicate that active diving on *Kiowa* occurs, but report conflicting location information.

CHARTING RECOMMENDATION

Recommendations: The hydrographer does not recommend any changes to AWOIS 7,838.

Concur

AWOIS: 10,343

Item Description: Submerged piling struck by vessel with 28 ft. (8.5 m) *draft* in USPS entrance channel. The stub of a piling remains at the location of the pier at Sunset Point. Piling was observed at extreme low tide. Piling reported in the channel at the entrance to the Weir River.

Source: H7715/1948, CL924/1973–USPS & CPR, LNM43/1973(10/3/19)–1ST CGD

Item Position: Lat: 42° 16' 28.36" N, Lon: 070° 53' 05.16" W

Required Investigation: SD, VS, DI

Radius: 250 m

Charts Affected: 13270

INVESTIGATION

Contact No: N/A

Date(s): DN303, DN227

Least Depth Position Number: N/A

Investigation Used: 200% SSS and 100% SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: Investigation of item 10,343 was only conducted in navigable portion of 250 m search radius. 200% side scan sonar coverage and approximately 15% SWMB were acquired over the navigable portion of the 250 m search radius for item 10,343. No contacts were selected from the SSS data.

CHARTING RECOMMENDATION

Recommendations: The hydrographer disproves the existence of the obstruction in position Lat: 42° 16' 28.36" N, Lon: 070° 53' 05.16" W in the navigable portion of item 10,343 search radius. Furthermore, the hydrographer recommends moving obstruction out of navigable portion of item 10,343 search radius, towards pier ruins at Sunset Point.

Concur with clarification, charted pier ruins adequately portray this area.

Delete Obstrn rep PA

Chart present survey depths

AWOIS: 10,361**Item Description:** Sunken barge reported.**Source:** NM35/1965(4945-B)-8/28/65**Item Position:** Lat: 42° 20' 15.35" N, Lon: 070° 54' 23.17" W**Required Investigation:** SD, S2, SWMB, DI**Radius:** 500 m**Charts Affected:** 13270

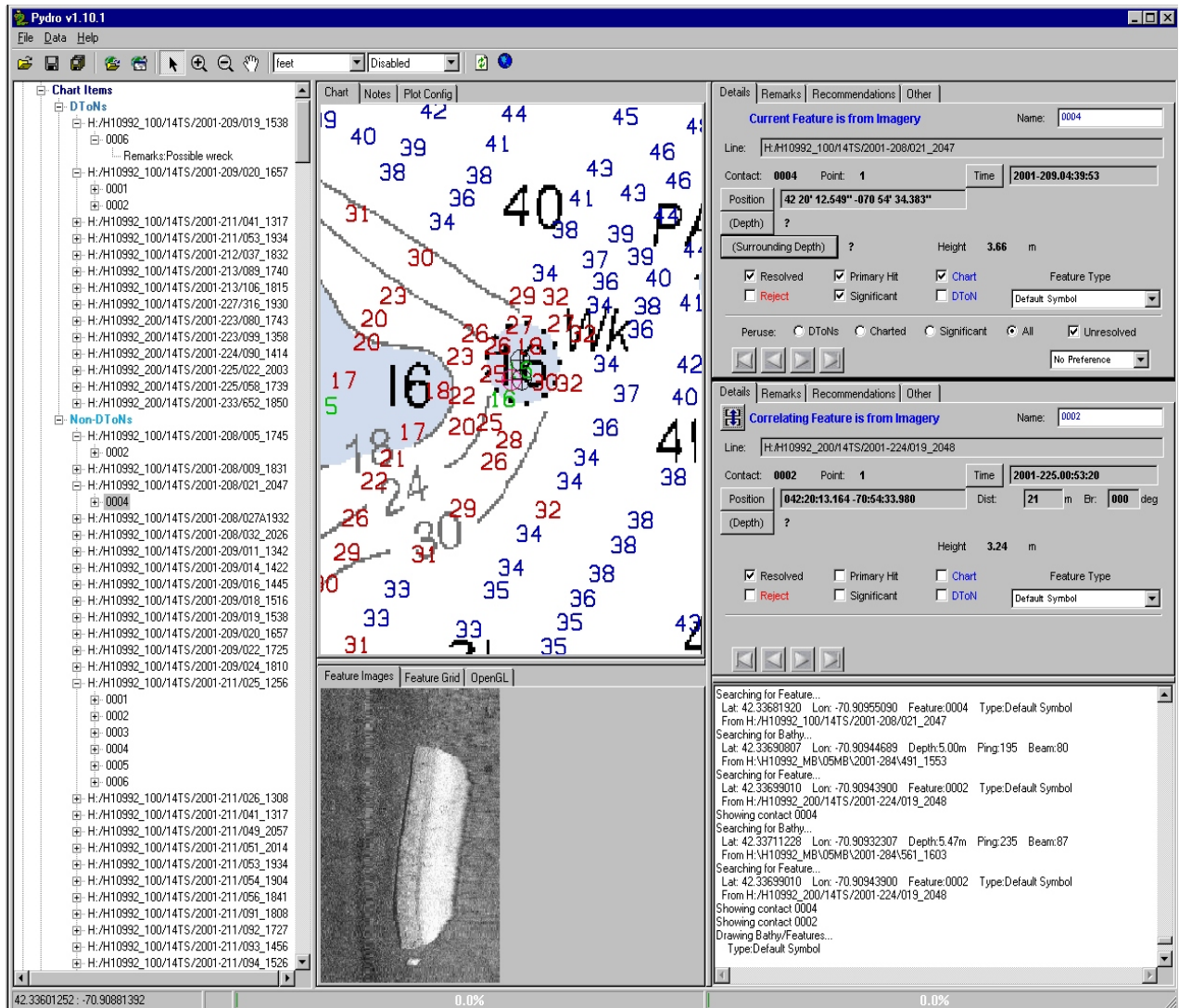
INVESTIGATION**Contact No:** 019_2048_0002, 020_2019_0004, 021_2047_0004**Date(s):** DN208, DN224, DN284**Least Depth Position Number:** H10992_MB\05MB\2001-284\491_1553; Ping:195;
Beam:80**Investigation Used:** 200% SSS and SWMB**Surveyed Position:** Lat: 42° 20' 12.869" N, Lon: 070° 54' 34.009" W**Position Determined By:** Differential GPS

Investigation Summary: 200% side scan sonar coverage and approximately 50% SWMB were acquired over the 500 m search radius for item 10,361. Three contacts representing the same wreck were selected and developed using SWMB. A least depth of 16 ft. (4.9 m), corrected with verified tides was acquired during development in position Lat: 42° 20' 12.869" N, Lon: 070° 54' 34.009" W bearing 250° and 260 meters from the current AWOIS position.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted wreck in Lat: 42° 20' 15.35" N, Lon: 070° 54' 23.17" W be removed and a wreck with a least depth of 16 feet (4.9 m) be charted in position Lat: 42° 20' 12.869" N, Lon: 070° 54' 34.009" W.

Concur with clarification 16 Wks with danger curve (include AWOIS 10362) were located in Latitude 42° 20' 12.88" N, Longitude 070° 54' 33.99" W during survey operations of H10991 (2000). Retain as charted.



AWOIS: 10,362

Item Description: Boston Marine Disposal Barge (BMD) number 17 sank off Calf Island on 16 April, 1967. Number 17 is resting on top of BMD Barge number 9. Both barges are 270 ft. (82.3 m) in length with a wire fence on their decks. Barge number 17 has a reported depth of 6 ft. (1.8 m) at MLW.

Source: NM21/1967(2271), NM9/1968(1151), CL1705/1967-COE LTR

Item Position: Lat: 42° 20' 15.35" N, Lon: 070° 54' 16.17" W

Required Investigation: SD, S2, SWMB, DI

Radius: 200 m

Charts Affected: 13270

INVESTIGATION

Contact No: 022_2003_0002, 024_1950_0008

Date(s): DN264, DN284, DN285, DN304

Least Depth Position Number: H10992_MB\05MB\2001-236\177_1901; Ping:109;
Beam:17

Investigation Used: 200% SSS and SWMB

Surveyed Position: Lat: 42° 20' 16.296" N, Lon: 070° 54' 06.448" W

Position Determined By: Differential GPS

Investigation Summary: 200% side scan sonar and approximately 99% SWMB coverage was acquired over the 200 m search radius of the item. Wreckage ~~matching the item description~~ was identified at position Lat: 42° 20' 16.296" N, Lon: 70° 54' 06.448" W bearing 083° and 200m from the present AWOIS position, with a least depth of 8 feet (2.4 m).

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted wreck in Lat: 42° 20' 15.35" N, Lon: 070° 54' 16.17" W be removed, and that a wreck with a least depth of 8 feet (2.4 m) be charted in position Lat: 42° 20' 16.296" N, Lon: 070° 54' 06.448" W.

Concur with clarification. This item was submitted as a DTON. AWOIS 10362 was located in Latitude 42° 20' 12.88"N, Longitude 70° 54' 33.99"W during survey operations of H10991 (2000). This wreck represents an additional item. Retain as charted.



AWOIS: 10,364**Item Description:** Sunken barge reported with a clearance of 28 ft. (8.5 m).**Source:** H7059WD/1945, LNM49/1985(12/3/85), CL1220/1985–NOS MEMO, LNM52/1985(12/24/85), NM6/1986(2/8/86), BP129874–COE-7/25/1986**Item Position:** Lat: 42° 21' 07.31" N, Lon: 070° 54' 38.54" W**Required Investigation:** SD, S2, SWMB, DI**Radius:** 200 m**Charts Affected:** 13270

INVESTIGATION**Contact No:** N/A**Date(s):** DN209, DN225, DN236, DN278, DN289**Least Depth Position Number:** N/A**Investigation Used:** N/A**Surveyed Position:** N/A**Position Determined By:** Differential GPS**Investigation Summary:** Item disproved by survey H10991.

CHARTING RECOMMENDATION**Recommendations:** N/A *Concur, no change in charting recommended.*

H10992

NOAA Ship WHITING

March 13, 2002

AWOIS: 10,365

Item Description: Large barge reported sunk about 200 ft. (61 m) east of Devil's Back.

Source: NM28/1968(4239)–7/13/68

Item Position: Lat: 42° 21' 07.50" N, Lon: 070° 54' 14.10" W

Required Investigation: SD, S2, SWMB, DI

Radius: 250 m

Charts Affected: 13270

INVESTIGATION

Contact No: 017_2040_0001

Date(s): DN208, DN209, DN236, DN225, DN278

Least Depth Position Number: H10992_MB\05MB\2001-236\088_165; Ping:456;
Beam:91

Investigation Used: 200% SSS and SWMB

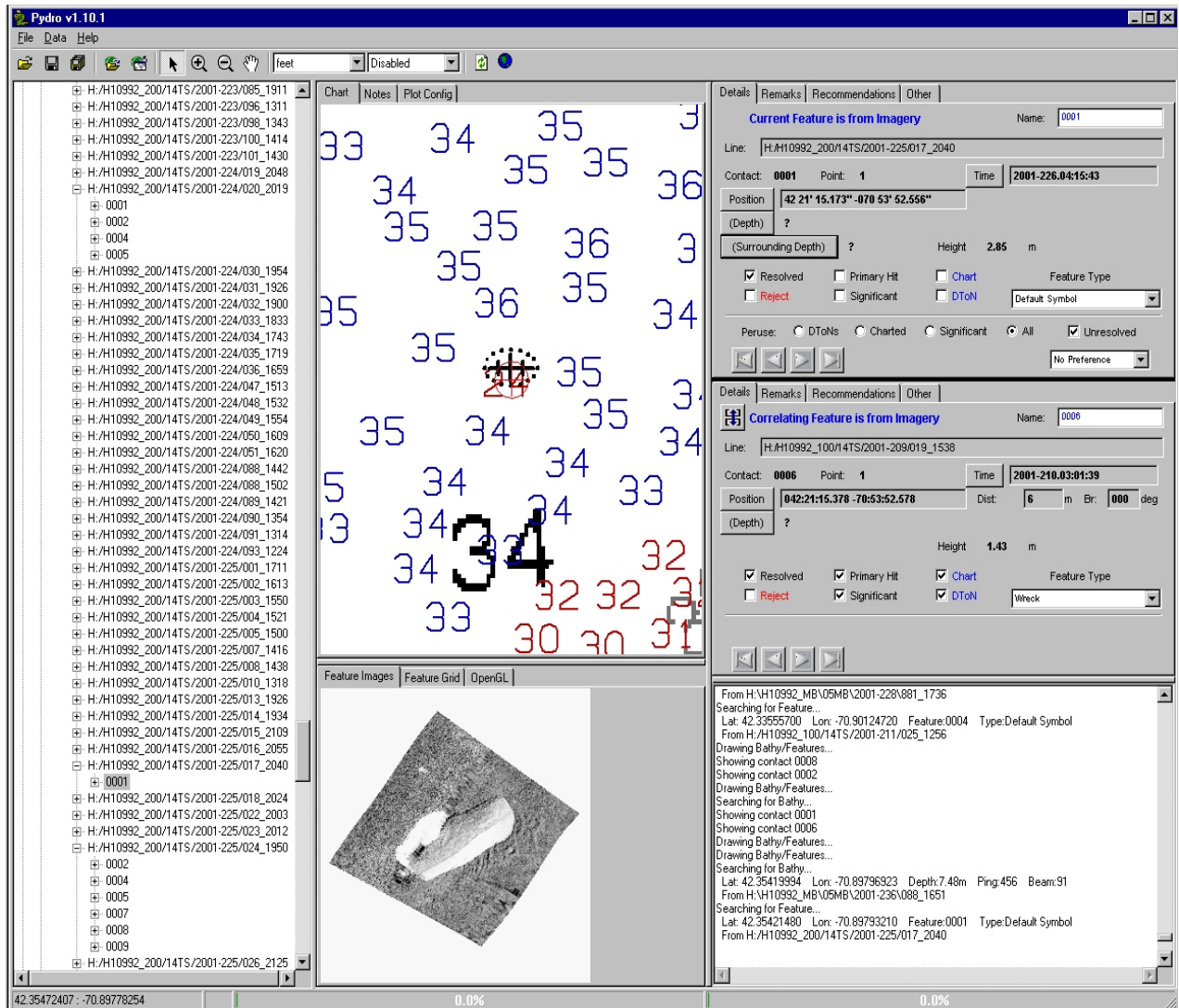
Surveyed Position: Lat: 42° 21' 15.12" N, Lon: 070° 53' 52.689" W

Position Determined By: Differential GPS

Investigation Summary: 200% side scan sonar coverage and approximately 35% SWMB were acquired over the 250 m search radius for item 10,365. One contact representing the wreck of a barge was selected and developed using SWMB. A least depth of 24 ft. (7.3 m), corrected with verified tides was acquired during development in position Lat: 42° 21' 15.12" N, Lon: 070° 53' 52.689" W bearing 065° and 531 meters from the current AWOIS position.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted wreck in Lat: 42° 21' 07.50" N, Lon: 070° 54' 14.10" W be removed, and that a wreck with a least depth of 24 feet (7.3 m) be charted in position Lat: 42° 21' 15.12" N, Lon: 070° 53' 52.689" W. *Concur Delete dangerous sunken wreck PA Chart 24 Wk with danger curve*



AWOIS: 10,366

Item Description: Visible barge approximately 130 ft. (39.6 m) long reported. Barge later reported to be no longer visible.

Source: T13243/1966–(BP88548), CL215/1976–USCG AUX, CL199/1984–USCG AUX, CL1320/1989–USPS

Item Position: Lat: 42° 20' 06.36" N, Lon: 070° 53' 44.17" W

Required Investigation: SD, S2, SWMB, DI

Radius: 200 m

Charts Affected: 13270

INVESTIGATION

Contact No: N/A

Date(s): N/A

Least Depth Position Number: N/A

Investigation Used: N/A

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: Item observed on shore, but unapproachable.

CHARTING RECOMMENDATION

Recommendations: The hydrographer does not recommend any changes to charted wreck in position Lat: 42° 20' 06.36" N, Lon: 070° 53' 44.17" W. *Concur with clarification*
Delete notation ED

H10992

NOAA Ship WHITING

March 13, 2002

AWOIS: 10,367

Item Description: Sunken barge reported.

Source: NM35/1965(4945-A)-8/28/65

Item Position: Lat: 42° 20' 10.36" N, Lon: 070° 53' 58.17" W

Required Investigation: SD, S2, SWMB, DI

Radius: 500 m

Charts Affected: 13270

INVESTIGATION

Contact No: 025_1256_0006, 041_1317_0002

Date(s): DN211, DN234, DN238, DN284

Least Depth Position Number: H10992_MB\05MB\2001-284\268_1635; Ping:905;
Beam:88

Investigation Used: 200% SSS and SWMB

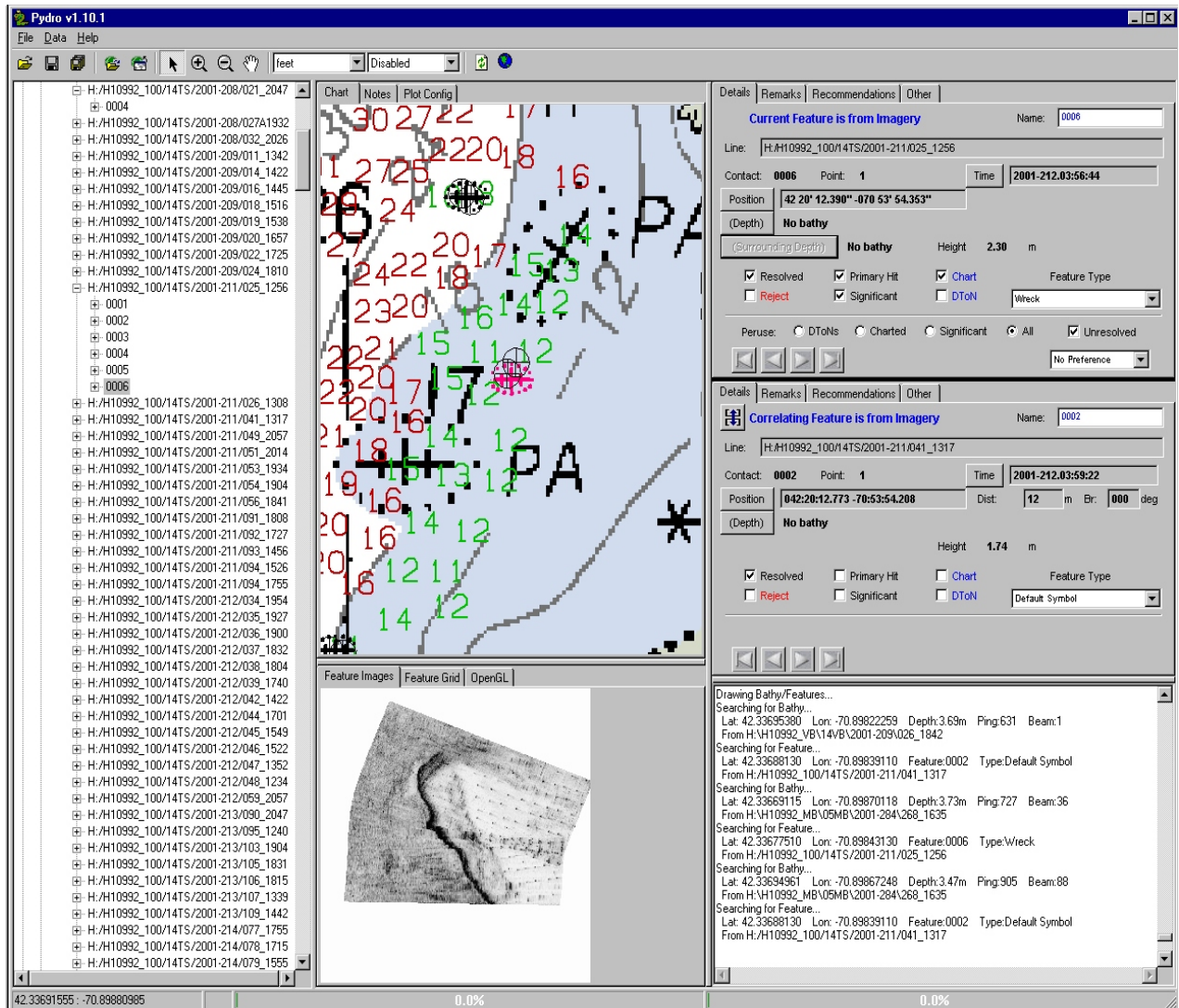
Surveyed Position: Lat: 42° 20' 13.01" N, Lon: 070° 53' 55.221~~1~~**86**" W

Position Determined By: Differential GPS

Investigation Summary: 200% side scan sonar coverage and 100% SWMB were acquired over the 500 m search radius for item 10,367. Two contacts representing the same wreck were selected and developed using SWMB. A least depth of 11 ft. (3.4 m), corrected with verified tides was acquired during development in position Lat: 42° 20' 13.019" N, Lon: 070° 53' 55.221" W bearing 039° and 102 meters from the current AWOIS position.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted wreck in Lat: 42° 20' 10.36" N, Lon: 070° 53' 58.17" W be removed, and that a wreck with a least depth of 11 feet (3.4 m) be charted in position Lat: 42° 20' 13.01" N, Lon: 070° 53' 55.**86**" W. **Concur**
Delete dangerous sunken wreck PA Chart 11 Wk and danger curve



AWOIS: 10,368

Item Description: Boston Marine Disposal barge NO. 21 reported sunk 1375 yards, 329° from Boston Light. Wreck lies in a NE/SW direction with fencing atop the barge awash at low water. Wreck later reported submerged.

Source: NM13/1968(1737)–3/30/68, CL197/84–USCG AUX

Item Position: Lat: 42° 20' 15.10" N, Lon: 070° 53' 52.90" W

Required Investigation: SD, S2, SWMB, DI

Radius: 500 m

Charts Affected: 13270

INVESTIGATION

Contact No: 041_1317_0003, 025_1256_0005,

Date(s): DN209, DN211, DN225, DN234, DN238

Least Depth Position Number: H10992_MB\05MB\2001-238\173_1245; Ping:1505; Beam:18

Investigation Used: 200% SSS and SWMB

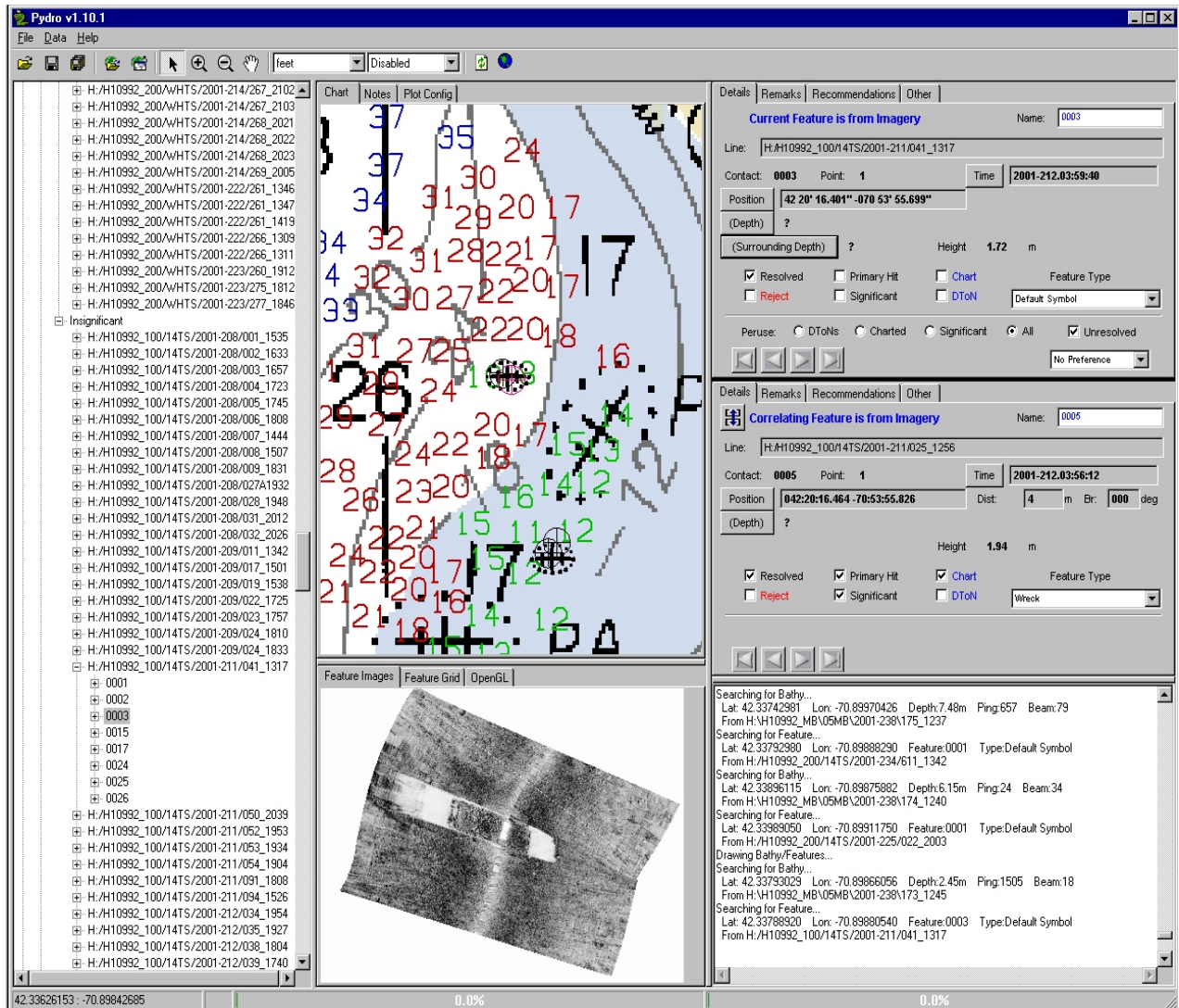
Surveyed Position: Lat: 42° 20' 16.528" N, Lon: 070° 53' 55.187" W

Position Determined By: Differential GPS

Investigation Summary: 200% side scan sonar coverage and 100% SWMB were acquired over the 500 m search radius for item 10,368. Two contacts representing the same wreck were selected and developed using SWMB. A least depth of 8 ft. (2.4 m), corrected with verified tides was acquired during development in position Lat: 42° 20' 16.549" N, Lon: 070° 53' 55.178" W bearing 306° and 68 meters from the current AWOIS position.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted wreck in Lat: 42° 20' 15.10" N, Lon: 070° 53' 52.90" W be removed, and that a wreck with a least depth of 8 feet (2.4 m) be charted in position Lat: 42° 20' 16.528" N, Lon: 070° 53' 55.187" W. **Concur**
Delete dangerous sunken wreck PA Chart 8 Wk and danger curve



AWOIS: 10,369

Item Description: Visible barge approximately 130 ft. (39.6 m) long, lies in a NE/SW direction west side of Calf Island.

Source: T13243/1966–(BP88548), CL215/1976–USCG AUX-ITEM 9, CL127/1978–USCG AUX, CL199/1984–USCG AUX, CL1320/1989–USPS

Item Position: Lat: 42° 20' 24.35" N, Lon: 070° 53' 56.17" W

Required Investigation: SD, S2, SWMB, DI

Radius: 200 m

Charts Affected: 13270

INVESTIGATION

Contact No: 022_2003_0001, 041_1317_0004

Date(s): DN211, DN225, DN228, DN237, DN284

Least Depth Position Number: H10992_MB\05MB\2001-284\310_1541; Ping:765; Beam:7

Investigation Used: 200% SSS and SWMB

Surveyed Position: Lat: 42° 20' 24.423" N, Lon: 070° 53' 56.735" W

Position Determined By: Differential GPS

Investigation Summary: 200% side scan sonar coverage and 100% SWMB were acquired over the 200 m search radius for item 10,369. Two contacts representing the same wreck were selected and developed using SWMB. A least depth of 9 ft. (2.7 m), corrected with verified tides was acquired during development in position Lat: 42° 20' 24.405" N, Lon: 070° 53' 56.745" W bearing 272° and 47 meters from the current AWOIS position.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted partially visible wreck in Lat: 42° 20' 24.35" N, Lon: 070° 53' 56.17" W be removed, and a partially visible wreck with a least depth of 9 feet (2.7 m) be charted in position Lat: 42° 20' 24.423" N, Lon: 070° 53' 56.735" W. *Do not concur* *Delete visible wreck*
Chart 9 Wk and danger curve



H10992

NOAA Ship WHITING

March 13, 2002

AWOIS: 10,370

Item Description: Disintegrating steel barge observed on the northeast shore of Calf Island.

Source: CL127/1978–USCG AUX

Item Position: Lat: 42° 20' 34.40" N, Lon: 070° 53' 42.50" W

Required Investigation: SD, S2, SWMB, DI

Radius: 250 m

Charts Affected: 13270

INVESTIGATION

Contact No: N/A

Date(s): N/A

Least Depth Position Number: N/A

Investigation Used: N/A

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: Item observed on shore, but unapproachable.

CHARTING RECOMMENDATION

Recommendations: The hydrographer does not recommend any changes to charted wreck in position Lat: 42° 20' 34.40" N, Lon: 070° 53' 42.50" W. *Concur*

H10992

NOAA Ship WHITING

March 13, 2002

AWOIS: 10,371

Item Description: Visible barge approximately 270 ft. (82.3 m) long.

Source: T13243/1966–(BP88548)

Item Position: Lat: 42° 20' 19.36" N, Lon: 070° 53' 09.17" W

Required Investigation: SD, S2, SWMB, DI

Radius: 200 m

Charts Affected: 13270

INVESTIGATION

Contact No: N/A

Date(s): N/A

Least Depth Position Number: N/A

Investigation Used: N/A

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: Item observed on shore, but unapproachable.

CHARTING RECOMMENDATION

Recommendations: The hydrographer does not recommend any changes to charted wreck in position Lat: 42° 20' 19.36" N, Lon: 070° 53' 09.17" W. *Concur*

H10992

NOAA Ship WHITING

March 13, 2002

AWOIS: 10,372

Item Description: Visible barge approximately 100 ft. (30.5 m) long.

Source: T13243/1966–(BP88548), CL1320/1989–USPS

Item Position: Lat: 42° 21' 08.85" N, Lon: 070° 53' 33.67" W

Required Investigation: SD, S2, SWMB, DI

Radius: 200 m

Charts Affected: 13270

INVESTIGATION

Contact No: N/A

Date(s): N/A

Least Depth Position Number: N/A

Investigation Used: N/A

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: Item observed on shore, but unapproachable.

CHARTING RECOMMENDATION

Recommendations: The hydrographer does not recommend any changes to charted wreck in position Lat: 42° 21' 08.85" N, Lon: 070° 53' 33.67" W. *Concur*

AWOIS: 10,373

Item Description: Tug *Shaun Rhue* reports hitting a submerged object 400 yards NNW of the NE tip of Green Island. Item charted as 23 ft. (7.0 m) wire drag *clearance depth*.

Source: CL1527/1966-USCG, NM1/1967(4)-1/7/67

Item Position: Lat: 42° 21' 24.35" N, Lon: 070° 53' 35.16" W

Required Investigation: SD, S2, SWMB, DI

Radius: 250 m

Charts Affected: 13270

INVESTIGATION

Contact No: 210_1857_0002, 020_1657_0001, 308_2130_0002

Date(s): DN209, DN210, DN225, DN227, DN283

Least Depth Position Number: H10992_MB\05MB\2001-283\126_1406; Ping:1015; Beam:60

Investigation Used: 200% SSS and SWMB

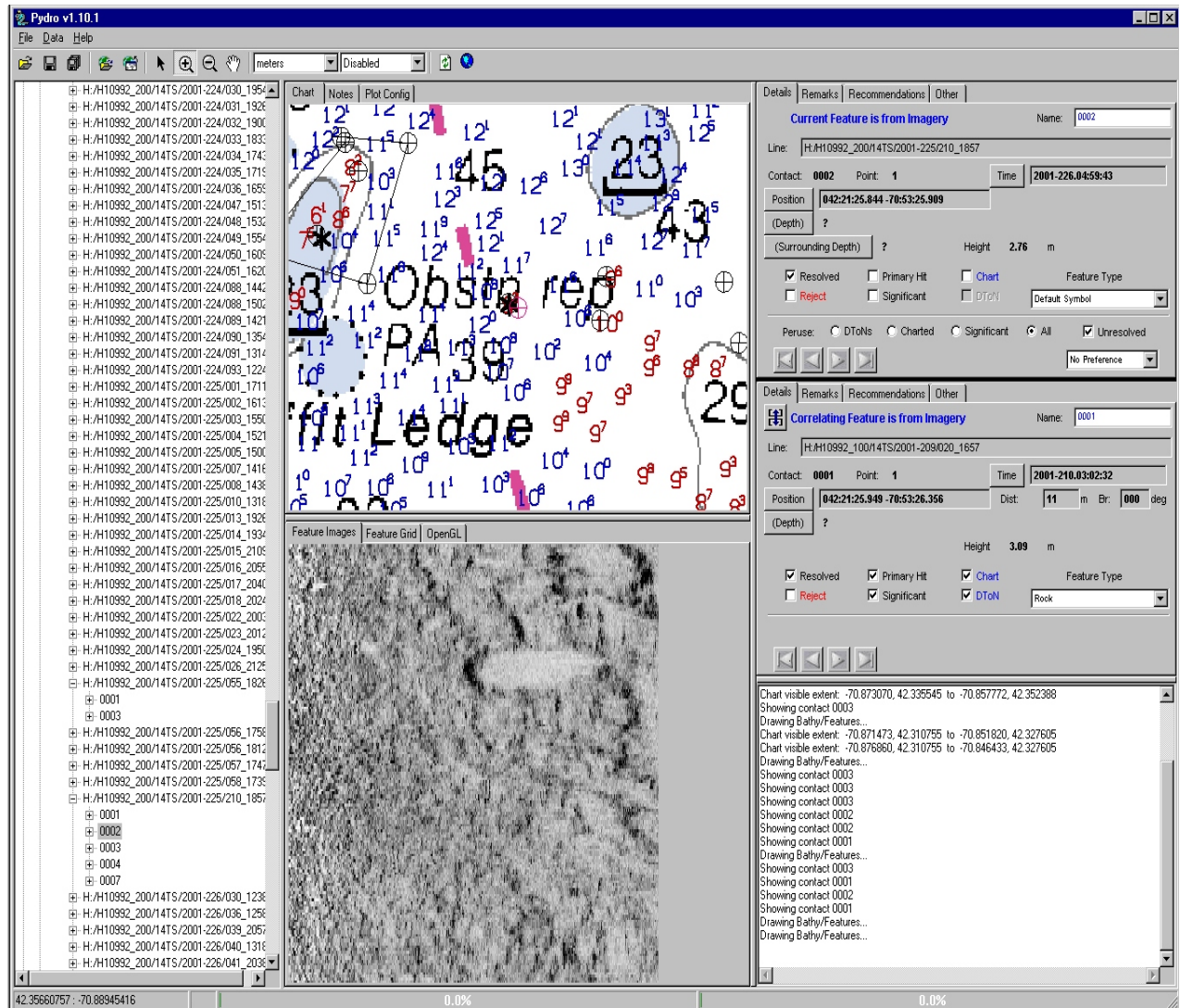
Surveyed Position: Lat: 42° ~~19' 6.355~~ **21'28.82"** N, Lon: 070° ~~51' 54.194~~ **53'36.11"** W

Position Determined By: Differential GPS

Investigation Summary: 200% side scan sonar coverage and approximately 90% SWMB were acquired over the 250 m search radius for item 10,373. Three contacts representing the same rock were selected and developed using SWMB. A least depth of 20 ft. (6.1 m), corrected with verified tides was acquired during development in position Lat: 42° ~~19' 6.355~~ **21'28.82"** N, Lon: 070° ~~51' 54.194~~ **53'36.11"** W.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the 23 ft. (7.0 m) wire drag *clearance depth* charted at Lat: 42° ~~21' 24.35~~ **21'26.12"** N, Lon: 070° ~~53' 35.16~~ **53'37.28"** W be removed, and a 20 ft. (6.1 m) rock be charted in position Lat: 42° ~~19' 6.355~~ **21'28.82"** N, Lon: 070° ~~51' 54.194~~ **53'36.11"** W. **Concur Add 20 Rk.**
Delete charted 23 wire drag clearance depth. It is also recommended that the charted Obstr rep PA in Latitude 42° 21' 24.35" N, Longitude 070° 53' 35.16" W (AWOIS #10373 location) be deleted.



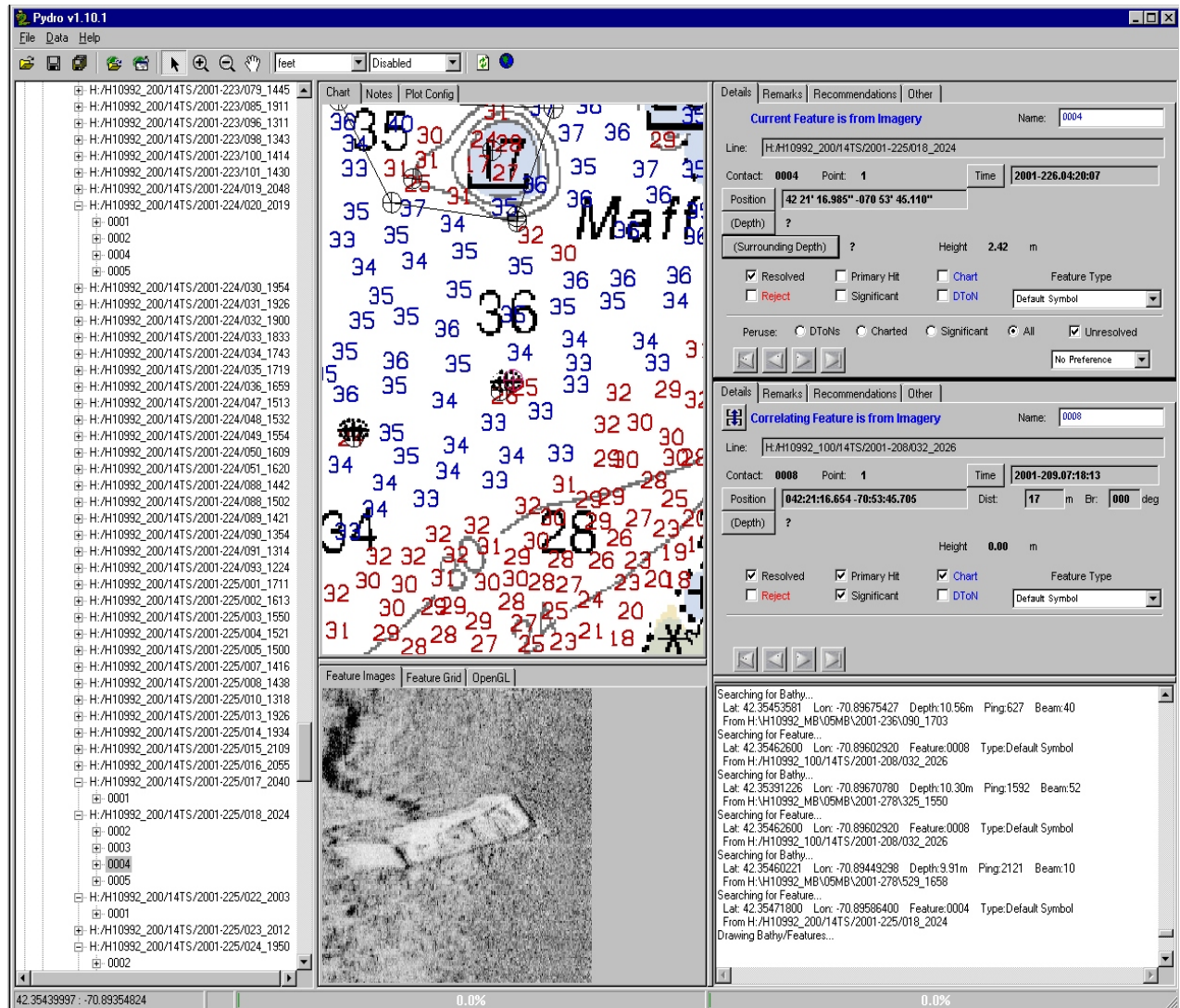
AWOIS: 10,374**Item Description:** Barge Aeroc NO. 1, 270 ft. long, reported sunk in 36 ft. (11.0 m) of water.**Source:** NM8/1966(1138)-2/19/66**Item Position:** Lat: 42° 21' 30.35" N, Lon: 070° 53' 40.17" W**Required Investigation:** SD, S2, SWMB, DI**Radius:** 500 m**Charts Affected:** 13270

INVESTIGATION**Contact No:** 018_2024_0004, 032_2026_0008**Date(s):** DN208, DN225, DN236, DN264, DN278**Least Depth Position Number:** H10992_MB\05MB\2001-264\372_1755; Ping:233; Beam:81**Investigation Used:** 200% SSS and SWMB**Surveyed Position:** Lat: 42° 21' 16.743~~82~~" N, Lon: 070° 53' 44.536 ~~45.24~~" W**Position Determined By:** Differential GPS

Investigation Summary: 200% side scan sonar coverage and approximately 50% SWMB were acquired over the 500 m search radius for item 10,374. Two contacts representing the same wreck were selected and developed using SWMB. A least depth of 9~~25~~ ft (2.7 ~~7.6~~ m), corrected with verified tides was acquired during development in position Lat: 42°21'16.743~~82~~"N, Lon: 070°53'44.536~~45.24~~"W bearing 194° and 451 meters from the current AWOIS position. *During office processing the depth was determined to be 25 ft (7.6m) . No depth less than 25 ft was seen during office processing.*

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted wreck in Lat: 42°21'30.35" N, Lon: 070° 53' 40.17" W be removed, and that a wreck with a least depth of 29~~25~~ft. feet (8.8~~7.6~~ m) be charted in position Lat: 42°21'16.743~~82~~" N, Lon: 070°53'44.536~~45.24~~" W. *Concur Delete dangerous sunken wreck, PA Chart a 25 Wk with danger curve*



H10992

NOAA Ship WHITING

March 13, 2002

AWOIS: 10,377

Item Description: *Dang* wreck reported.

Source: LNM35/1991(8/28/91)–1st CGD

Item Position: Lat: 42° 22' 11.00" N, Lon: 070° 54' 42.00" W

Required Investigation: SD, S2, SWMB, DI

Radius: 500 m

Charts Affected: 13270

INVESTIGATION

Contact No: N/A

Date(s): DN208, DN225, DN236, DN264, DN278

Least Depth Position Number: N/A

Investigation Used: 200% SSS and SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: Item disproved by survey H10994.

CHARTING RECOMMENDATION

Recommendations: N/A

Disproved during H10994 (2000-2001) survey operations.

See H10994 (2000-2001) for charting recommendation and additional information.

Delete dangerous sunken wreck PA

Charted Feature Comparison

There were fifteen wire drag symbols in the survey limits that were not assigned as AWOIS items. The charted wire drag positions, the charted wire drag depths, the corresponding survey soundings least depths positions, and the corresponding survey soundings least depths are contained within the following table.

Wire Drag Latitude	Wire Drag Longitude	Wire Drag Depth (ft)	Least Depth Latitude	Least Depth Longitude	Least Depth (ft)
42° 21' 23.97" N	070° 53' 45.63" W	17 <i>Rk</i>	42° 21' 23.84" N	070° 53' 46.81" W	17 <i>Rk</i> *
42° 21' 29.46" N	070° 53' 20.37" W	23	42° 21' 31.07" N	070° 53' 19.06" W	37 *
42° 21' 26.34" N	070° 53' 09.4" W	26	42° 21' 25.57 " N <i>28.40</i>	070° 53' 12.75 " W <i>06.73</i>	26 33 *
42° 21' 19.54" N	070° 53' 10.31" W	23	42° 21' 18.93" N	070° 53' 12.65" W	24 *
42° 21' 35.85" N	070° 53' 04.69" W	32	42° 21' 32.37 " N <i>34.95</i>	070° 53' 05.23 " W <i>04.91</i>	33 35 *
42° 21' 53.01" N	070° 52' 35.07" W	21	42° 21' 54.74" N	070° 52' 33.90" W	20 *
42° 21' 43.61" N	070° 52' 23.15" W	21	42° 21' 43.50" N	070° 52' 23.23" W	20 <i>Rk</i> *
42° 20' 32.49" N	070° 53' 21.62" W	22	42° 20' 32.51" N	070° 53' 21.85" W	23 *
42° 20' 26.4" N	070° 54' 05.09" W	20 <i>Rk</i>	42° 20' 26.97" N	070° 54' 06.47" W	22 3 <i>Rk</i> *
42° 21' 10.84" N	070° 54' 33.56" W	28	42° 21' 11.61" N	070° 54' 33.20" W	28 *
42° 18' 54.7" N	070° 52' 28.38" W	15 <i>Obstn</i>	42° 18' 55.03 " N <i>54.99</i>	070° 52' 28.86" W <i>.92"</i>	18 <i>Rk</i> *
42° 21' 13.81" N	070° 50' 43.41" W	18	42° 21' 13.95" N	070° 50' 43.79" W	20 *
42° 21' 26.14" N	070° 50' 50.85" W	44	42° 21' 27.14" N	070° 50' 47.68" W	44 5 *
42° 21' 03.16" N	070° 50' 56.44" W	36	42° 21' 03.66" N	070° 50' 57.79" W	38 *
42° 21' 10.95 " N <i>29.50"</i>	070° 54' 33.83 " W <i>53' 58.10"</i>	29 <i>Obstn</i>	42° 21' 28.58" N	070° 53' 57.20" W	29 <i>Rk</i> *

** Chart as shown in present survey location*

Each charted wire drag was investigated with 200% side scan sonar, and 100% SWMB. The hydrographer recommends removing these fifteen charted wire drags from the positions indicated. Furthermore, the hydrographer recommends that the survey soundings be charted at the positions indicated. This table is available as a MapInfo .TAB file in the electronic submission package at H10992/Plots/Depth/wire_drag.TAB.

Dangers to Navigation

A total of twelve Dangers to Navigation (Dton) were reported by the Hydrographer to N/CS33 (AHB). For the complete Dton report (dated February 08, 2002) see Appendix I. The following table lists the Dton with reference to their source data. SWMB and VBES data is referenced by its **CARIS** file (project/vessel/Day/Line/Ping/Beam).

DTON #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
1	8 Rk ***	42.33786 42°20'16.30"N	-70.901791 70°54'06.45"W	h10992_ mb	05mb	2001- 236	177_ 1901	109	17
2	25 6 *	42.31886 42°19'07.90"N	-70.909167 70°54'33.00"W	h10992_ mb	05mb	2001- 283	397_ 1826	788	89
3	26 7 Rk *	42.317724 42°19'03.81"N	-70.895657 70°53'44.37"W	h10992_ mb	05mb	2001- 283	259_ 1910	396	27
4	27 8 *	42.318355 42°19'06.08"N	-70.875899 70°52'33.24"W	h10992_ mb	05mb	2001- 283	541_ 1340	820	14
5	29 Rk *	42.322984 42°19'22.44"N	-70.877184 70°52'38.56"W	h10992_ mb	05mb	2001- 237	055_ 1744	3597	58
6	29 Rk ****	42.357355 42°21'26.48"N	-70.906317 70°54'22.74"W	h10992_ mb	05mb	2001- 278	476_ 1512	265	23
7	30 2Rk ****	42.321547 42°19'17.57"N	-70.880089 70°52'48.32"W	h10992_ mb	05mb	2001- 283	391_ 1927	747	37
8	30 *	42.361671 42°21'42.02"N	-70.906524 70°54'23.49"W	h10992_ mb	05mb	2001- 236	150_ 1341	134	44
9	30 1 Rk *	42.331278 42°19'52.60"N	-70.860591 70°51'38.13"W	h10992_ mb	05mb	2001- 239	208_ 1756	328	66
10	35 *	42.366592 42°21'59.73"N	-70.852637 70°51'09.49"W	h10992_ mb	05mb	2001- 232	539_ 2123	400	10
11	35 *	42.327608 42°19'39.39"N	-70.871187 70°52'16.27"W	h10992_v b	14vb	2001- 224	049_ 1554	1020	1
12	39 40 *	42.322203 42°19'19.93"N	-70.859704 70°51'34.93"W	h10992_ mb	05mb	2001- 283	425_ 1314	324	79

* Chart as shown in present survey location.

** Determined insignificant during office processing, chart representative survey soundings.

*** See AWOIS 10362 page 30 of this report for charting recommendation.

**** See Evaluation Report page 5, sections D.11 and D.12, for charting recommendations.

Charting Discrepancies

The following is a list of significant charting discrepancies identified within this survey. These soundings are not selected as dangers to navigation, but they vary significantly from the current nautical chart. This table is available as a MapInfo .TAB file in the electronic submission package at H10992/Plots/Depth/charting_discrepancies.TAB.

** Chart as shown in present survey location*

*** Determined insignificant during office processing. Chart representative sounding.*

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
1	5 6 *	42.33732 <i>42°20'14.35"N</i>	-70.88744 <i>70°53'13.99"W</i>	h10992_mb	05mb	2001-278	368_ 2039	113	98
2	6 *	42.344057 <i>42°20'38.60"N</i>	-70.87628 <i>70°52'34.61"W</i>	h10992_vb	14vb	2001-211	041_ 1317	30003	1
3	8 10 **	42.312023 <i>09</i>	-70.90753 <i>28</i>	h10992_mb	05mb	2001-237	125_ 1818	684	1
4	8 <i>Wk AWOIS 10368</i>	42.33793 <i>42°20'16.53"N</i>	-70.89866 <i>70°53'55.19"W</i>	h10992_mb	05mb	2001-238	173_ 1245	1505	18
5	8 <i>Rk *</i>	42.273228 <i>42°16'23.62"N</i>	-70.84501 <i>70°50'42.04"W</i>	h10992_mb	05mb	2001-275	095_ 1458	250	41
6	8 <i>Rk *</i>	42.351837 <i>42°21'06.61"N</i>	-70.8966 <i>70°53'47.76"W</i>	h10992_mb	05mb	2001-264	355_ 1757	993	93
7	9 <i>Rk *</i>	42.325785 <i>45</i> <i>42°19'32.68"N</i>	-70.90091 <i>105</i> <i>70°54'03.78"W</i>	h10992_mb	05mb	2001-241	655_ 1342	201	3
8	9 10 *	42.353701 <i>42°21'13.32"N</i>	-70.88928 <i>70°53'21.41"W</i>	h10992_mb	05mb	2001-238	006_ 1334	92	97
9	9 <i>Wk AWOIS 10369</i>	42.340112 <i>42°20'24.42"N</i>	-70.8991 <i>70°53'56.74"W</i>	h10992_mb	05mb	2001-284	310_ 1541	765	7
10	10 <i>Rk *</i>	42.271008 <i>42°16'15.63"N</i>	-70.84401 <i>70°50'38.44"W</i>	h10992_mb	05mb	2001-275	099_ 1508	265	92
11	10 *	42.269223 <i>42°16'09.20"N</i>	-70.89623 <i>70°53'46.43"W</i>	h10992_vb	14vb	2001-227	155_ 1416	1905	1

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
12	10 11 **	42.337444 500	-70.88655 45	h10992_mb	05mb	2001-278	368_ 2039	262	98
13	11 *	42.342899 42°20'34.44"N	-70.89776 70°53'51.94"W	h10992_vb	14vb	2001-211	041_ 1317	9887	1
14	11 *	42.314588 42°18'52.52"N	-70.88117 70°52'52.21"W	h10992_vb	14vb	2001-213	089_ 1641	12165	1
15	12 Rk *	42.270821 42°16'14.96"N	-70.8281 70°49'41.16"W	h10992_mb	05mb	2001-275	053_ 1725	1933	71
16	12 **	42.304369	-70.84947	h10992_mb	05mb	2001-284	146_ 1449	581	92
17	13 15 *	42.333687 42°20'01.27"N	-70.86973 70°52'11.03"W	h10992_mb	05mb	2001-283	294_ 2025	309	81
18	13 14 *	42.34412 42°20'38.83"N	-70.88633 70°53'10.79"W	h10992_mb	05mb	2001-278	301_ 1930	531	21
19	14 **	42.328784	-70.88238	h10992_vb	14vb	2001-212	042_ 1422	5999	1
20	14 **	42.272972	-70.84431	h10992_mb	05mb	2001-275	095_ 1458	91	91
21	14 **	42.340895	-70.87581	h10992_mb	05mb	2001-278	371_ 2026	277	90
22	14 **	42.325499	-70.88969	h10992_mb	05mb	2001-241	650_ 1248	676	11
23	14 17 **	42.332201	-70.87678	h10992_mb	05mb	2001-283	389_ 2018	343	88
24	15 **	42.335194	-70.88821	h10992_mb	05mb	2001-237	158_ 1412	126	85
25	15 **	42.351711	-70.89022	h10992_mb	05mb	2001-236	181_ 1810	466	74
26	15 Rk *	42.332206 42°19'55.94"N	-70.88375 70°53'01.50"W	h10992_mb	05mb	2001-235	673_ 1836	127	89
27	15 **	42.304828	-70.84992	h10992_mb	05mb	2001-284	559_ 1452	63	21
28	15 17 **	42.328498	-70.88059	h10992_mb	05mb	2001-283	392_ 2004	878	23

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
29	15 *	42.295189 <i>42°17'42.68"N</i>	-70.86781 <i>70°52'04.12"W</i>	h10992_mb	05mb	2001-242	636_ 1314	1080	16
30	15 17 **	42.326046	-70.8868	h10992_mb	05mb	2001-283	166_ 1958	61	28
31	15 *	42.270837 <i>42°16'15.01"N</i>	-70.87183 <i>70°52'18.59"W</i>	h10992_vb	14vb	2001-227	154_ 1358	2217	1
32	15 17 **	42.326491	-70.8856	h10992_mb	05mb	2001-283	166_ 1958	345	46
33	15 16 **	42.336489	-70.88259	h10992_mb	05mb	2001-278	279_ 2046	273	85
34	15 16 **	42.334032	-70.87843	h10992_mb	05mb	2001-284	280_ 1317	1357	88
35	16 **	42.331655	-70.88598	h10992_vb	14vb	2001-212	042_ 1438	2777	1
36	16 **	42.316262	-70.9073	h10992_mb	05mb	2001-237	115_ 1902	1207	101
37	16 **	42.315511	-70.90626	h10992_mb	05mb	2001-237	117_ 1845	1447	100
38	16 **	42.315571	-70.87938	h10992_mb	05mb	2001-302	075_ 1026	254	30
39	16 **	42.315165	-70.88611	h10992_vb	14vb	2001-228	324_ 1312	941	1
40	16 **	42.30862	-70.87677	h10992_vb	14vb	2001-226	099_ 2154	20857	1
41	16 19 **	42.332708	-70.87515	h10992_mb	05mb	2001-283	293_ 2021	40	89
42	16 **	42.34218	-70.89172	h10992_mb	05mb	2001-238	021_ 1827	5350	92
43	16 *	42.327274 <i>42°19'38.19"N</i>	-70.88662 <i>70°53'11.83"W</i>	h10992_mb	05mb	2001-241	664_ 1320	58	14
44	16 **	42.327195	-70.88797	h10992_vb	14vb	2001-211	041_ 1317	45729	1

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
45	17 **	42.330843	-70.8877	h10992_vb	14vb	2001-228	623_2107	109	1
46	17 **	42.354372	-70.88318	h10992_mb	05mb	2001-278	340_1813	318	55
47	17 **	42.312804	-70.89025	h10992_mb	05mb	2001-237	133_1759	505	20
48	17 **	42.329282	-70.88759	h10992_mb	05mb	2001-302	127_0951	354	65
49	17 18 **	42.334751	-70.87723	h10992_mb	05mb	2001-284	280_1317	1637	14
50	17 *	42.338234 <i>42°20'17.64"N</i>	-70.87604 <i>70°52'33.74"W</i>	h10992_mb	05mb	2001-278	277_2114	141	65
51	17 **	42.314213	-70.88931	h10992_vb	14vb	2001-228	324_1312	1847	1
52	17 **	42.332265	-70.90058	h10992_mb	05mb	2001-228	888_1859	1026	2
53	17 <i>Rk</i> *	42.3147 <i>42°18'52.92"N</i>	-70.87756 <i>70°52'39.22"W</i>	h10992_mb	05mb	2001-241	621_1841	212	42
54	17 18 **	42.30607	-70.84943	h10992_mb	05mb	2001-284	142_1341	613	38
55	17 <i>Rk</i> *	42.292825 <i>42°17'34.17"N</i>	-70.86677 <i>70°52'00.37"W</i>	h10992_mb	05mb	2001-242	633_1258	1910	86
56	17 18 **	42.334496	-70.88708	h10992_mb	05mb	2001-237	166_1353	125	31
57	17 *	42.273775 <i>42°16'25.59"N</i>	-70.82705 <i>70°49'37.38"W</i>	h10992_mb	05mb	2001-275	059_1705	980	42
58	17 **	42.261512	-70.89138	h10992_vb	14vb	2001-227	155_1416	5396	1
59	17 *	42.28106 <i>42°16'51.82"N</i>	-70.85698 <i>70°51'25.13"W</i>	h10992_mb	05mb	2001-275	103_1420	482	91
60	17 20 **	42.334051	-70.87091	h10992_mb	05mb	2001-283	293_2021	872	78

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
61	17 19 **	42.336282	-70.90213	h10992_mb	05mb	2001-228	721_1907	1614	94
62	18 16 **	42.357024	-70.87834	h10992_mb	05mb	2001-239	071_1308	148	101
63	18 **	42.2644	-70.89363	h10992_vb	14vb	2001-227	155_1416	3897	1
64	18 19 **	42.305455	-70.85005	h10992_mb	05mb	2001-284	143_1344	489	11
65	18 **	42.27397	-70.84735	h10992_vb	14vb	2001-228	338_1407	279	1
66	18 Rk *	42.274578 42°16'28.48"N	-70.82423 70°49'27.23"W	h10992_mb	05mb	2001-275	054_1720	1376	14
67	18 **	42.334429	-70.90051	h10992_mb	05mb	2001-238	174_1240	1325	72
68	18 **	42.302918	-70.86101	h10992_mb	05mb	2001-240	263_1923	471	1
69	18 *	42.335527 42°20'07.90"N	-70.90128 70°54'04.61"W	h10992_mb	05mb	2001-228	881_1736	2189	76
70	18 **	42.291461	-70.86717	h10992_mb	05mb	2001-241	628_1911	104	12
71	18 *	42.3376 42°20'15.36"N	-70.8845 70°53'04.20"W	h10992_mb	05mb	2001-237	159_1407	621	14
72	18 **	42.283416	-70.86087	h10992_vb	14vb	2001-226	099_2154	11403	1
73	18 21 *	42.336149 42°20'10.14"N	-70.87149 70°52'17.36"W	h10992_mb	05mb	2001-283	291_2124	1657	21
74	18 *	42.335355 42°20'07.28"N	-70.90482 70°54'17.35"W	h10992_mb	05mb	2001-238	178_1229	1740	86
75	19 **	42.304389	-70.87521	h10992_vb	14vb	2001-233	642_1946	785	1
76	19 **	42.347584	-70.89392	h10992_mb	05mb	2001-264	392_1838	364	80

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
77	19 20 **	42.363568	-70.8696	h10992_mb	05mb	2001-264	386_1417	950	92
78	19 **	42.31321	-70.89726	h10992_vb	14vb	2001-226	104_1803	3235	1
79	20 22 **	42.330322	-70.87645	h10992_mb	05mb	2001-283	163_2001	1004	9
80	20 **	42.270529	-70.82912	h10992_mb	05mb	2001-275	055_1716	1955	81
81	20 <i>Rk</i> <i>AWOIS</i> <i>10373</i>	42.357992 <i>42°21'28.82"N</i>	-70.89337 <i>70°53'36.11"W</i>	h10992_mb	05mb	2001-236	088_1651	2081	24
82	20 23 <i>Rk *</i>	42.33816 <i>42°20'17.38"N</i>	-70.86697 <i>70°52'01.09"W</i>	h10992_mb	05mb	2001-283	291_2124	2560	12
83	20 **	42.332618	-70.8786	h10992_mb	05mb	2001-283	282_2118	2005	89
84	20 **	42.294839	-70.86615	h10992_mb	05mb	2001-242	639_1317	472	35
85	20 21 <i>Rk *</i>	42.327657 <i>42</i> <i>42°19'39.51"N</i>	-70.88033 <i>37</i> <i>70°52'49.33"W</i>	h10992_mb	05mb	2001-283	393_2007	4	89
86	20 22 **	42.276294	-70.84701	h10992_mb	05mb	2001-275	086_1430	209	96
87	21 **	42.33425	-70.87055	h10992_mb	05mb	2001-283	293_2021	950	38
88	21 *	42.314597 <i>42°18'52.55"N</i>	-70.87039 <i>70°52'13.40"W</i>	h10992_mb	05mb	2001-241	622_1845	202	67
89	21 22 **	42.296796	-70.87018	h10992_mb	05mb	2001-242	633_1258	607	31
90	21 **	42.324016	-70.90516	h10992_vb	14vb	2001-234	634_1228	94	1
91	22 **	42.313916	-70.87092	h10992_mb	05mb	2001-302	073_1038	1003	51
92	22 **	42.307363	-70.86494	h10992_mb	05mb	2001-283	120_1449	598	89

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
93	22 **	42.294351	-70.86484	h10992_mb	05mb	2001-242	641_1325	426	33
94	22 **	42.354273	-70.84465	h10992_mb	05mb	2001-229	615_1743	1409	80
95	22 **	42.274236	-70.82811	h10992_mb	05mb	2001-275	062_1606	473	61
96	22 **	42.279253 <i>341</i>	-70.83239 <i>72</i>	h10992_mb	05mb	2001-275	049_1758	611	82
97	22 <i>25</i> **	42.333527	-70.87649	h10992_mb	05mb	2001-283	282_2118	1541	89
98	22 **	42.288441	-70.85054	h10992_mb	05mb	2001-275	157_1312	383	79
99	22 **	42.305554	-70.84438	h10992_mb	05mb	2001-284	151_1432	911	29
100	22 <i>Rk</i> *	42.344444 <i>42°20'40.00"N</i>	-70.88782 <i>70°53'16.15"W</i>	h10992_mb	05mb	2001-238	022_1840	2200	58
101	22 **	42.349805	-70.89334	h10992_mb	05mb	2001-236	008_1906	3766	23
102	23 *	42.305988 <i>42°18'21.56"N</i>	-70.85869 <i>70°51'31.28"W</i>	h10992_mb	05mb	2001-240	258_1909	54	14
103	23 <i>Rk</i> *	42.294464 <i>42°17'40.07"N</i>	-70.86369 <i>70°51'49.28"W</i>	h10992_mb	05mb	2001-242	644_1333	508	44
104	24 **	42.302091	-70.87168	h10992_vb	14vb	2001-223	084_1857	2041	1
105	24 **	42.3162 <i>31</i>	-70.86751 <i>867</i>	h10992_vb	14vb	2001-223	102_2045	1334	1
106	24 **	42.3044	-70.85832	h10992_mb	05mb	2001-240	263_1923	1170	24
107	24 **	42.313169	-70.87124	h10992_mb	05mb	2001-302	070_1052	588	48
108	24 **	42.345145	-70.91114	h10992_vb	14vb	2001-209	017_1501	530	1

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
109	24 <i>Wk</i> <i>AWOIS</i> <i>10365</i>	42.3542 <i>42°21'15.12"N</i>	-70.89797 <i>70°53'52.69"W</i>	h10992_mb	05mb	2001-236	088_ 1651	456	91
110	24 **	42.280677	-70.85567	h10992_mb	05mb	2001-302	033_ 1326	45	9
111	25 **	42.31564	-70.86273	h10992_mb	05mb	2001-283	124_ 1429	876	72
112	25 <i>Wk</i> <i>AWOIS</i> <i>10374</i>	42.35465+ <i>73</i> <i>42°21'16.82"N</i>	-70.89579 <i>70°53'45.24"W</i>	h10992_mb	05mb	2001-264	372_ 1755	233	81
113	25 **	42.276203	-70.84462	h10992_mb	05mb	2001-275	087_ 1434	722	15
114	25 **	42.289962 <i>839</i>	-70.86441	h10992_vb	14vb	2001-214	082_ 1412	1188	1
115	25 **	42.322501	-70.91161	h10992_mb	05mb	2001-237	101_ 2006	28	8
116	25 26 **	42.290574	-70.84735	h10992_mb	05mb	2001-242	673_ 1413	840	81
117	26 * <i>Obstn</i>	42.279253 <i>42°16'45.31"N</i>	-70.8471 <i>70°50'49.56"W</i>	h10992_mb	05mb	2001-275	081_ 1400	1432	20
118	26 **	42.309304	-70.86345	h10992_mb	05mb	2001-240	244_ 1755	316	66
119	26 29 **	42.334414	-70.87391	h10992_mb	05mb	2001-283	282_ 2118	1007	30
120	26 **	42.305367	-70.85711	h10992_mb	05mb	2001-240	263_ 1923	1532	1
121	27 **	42.275669	-70.8283	h10992_mb	05mb	2001-275	066_ 1545	2018	70
122	27 28 **	42.28227	-70.83462	h10992_vb	14vb	2001-290	011_ 1428	26	1
123	27 *	42.287621 <i>42°17'15.44"N</i>	-70.83073 <i>70°49'50.63"W</i>	h10992_mb	05mb	2001-275	036_ 1813	1087	41
124	27 **	42.344401	-70.87446	h10992_mb	05mb	2001-264	535_ 2029	347	29

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
125	27 **	42.283103	-70.83503	h10992_mb	05mb	2001-300	022_1317	977	45
126	27 **	42.308429	-70.87371	h10992_vb	14vb	2001-223	085_1911	3208	1
127	27 **	42.321033	-70.90756	h10992_mb	05mb	2001-237	105_1950	1149	53
128	27 <i>Rk *</i>	42.357199 <i>206</i> <i>42°21'25.94"N</i>	-70.890676 <i>70°53'26.39"W</i>	h10992_mb	05mb	2001-278	529_1658	3040	17
129	27 **	42.271036	-70.83098	h10992_vb	14vb	2001-213	090_2047	2783	1
130	27 **	42.306233	-70.86168	h10992_mb	05mb	2001-240	253_1833	228	83
131	27 **	42.363856	-70.87146	h10992_mb	05mb	2001-238	009_1254	6702	101
132	27 **	42.304758	-70.85423	h10992_vb	14vb	2001-214	077_1755	9895	1
133	27 **	42.339871 <i>40161</i>	-70.87623 <i>14</i>	h10992_mb	05mb	2001-235	666_1507	2771	101
134	27 **	42.322536	-70.90957	h10992_mb	05mb	2001-283	402_1854	587	11
135	28 <i>29</i> **	42.322685	-70.87928	h10992_mb	05mb	2001-237	052_1552	4062	1
136	28 **	42.293167	-70.86279	h10992_mb	05mb	2001-242	643_1330	820	21
137	28 **	42.339842	-70.90288	h10992_mb	05mb	2001-228	714_1959	1427	80
138	28 **	42.316969	-70.87612	h10992_mb	05mb	2001-241	613_1750	1414	87
139	28 **	42.362969	-70.87016	h10992_mb	05mb	2001-238	072_1520	138	15
140	28 **	42.285183	-70.83636	h10992_mb	05mb	2001-300	018_1328	232	23

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
141	28 31 **	42.325015	-70.88111	h10992_mb	05mb	2001-283	162_ 1942	367	65
142	28 29 **	42.334916	-70.88358	h10992_mb	05mb	2001-237	170_ 1321	1433	83
143	29 **	42.355847	-70.8845	h10992_mb	05mb	2001-264	361_ 1812	791	58
144	29 Rk *	42.347407 42°20'50.66"N	-70.89549 70°53'43.76"W	h10992_mb	05mb	2001-228	711_ 2017	3553	34
145	29 **	42.328525	-70.88303	h10992_mb	05mb	2001-234	785_ 1818	1255	24
146	29 **	42.290288	-70.85039	h10992_mb	05mb	2001-242	672_ 1409	312	15
147	29 **	42.30848	-70.85489	h10992_mb	05mb	2001-276	035_ 2047	471	56
148	29 **	42.343109	-70.88987	h10992_mb	05mb	2001-238	022_ 1840	1469	11
149	29 30 **	42.30494	-70.85203	h10992_mb	05mb	2001-284	141_ 1338	154	34
150	29 **	42.29699 717	-70.86776 51	h10992_mb	05mb	2001-302	046_ 1307	799	82
151	29 **	42.305317	-70.86238	h10992_mb	05mb	2001-240	255_ 1848	8	12
152	29 30 **	42.356634	-70.8606	h10992_mb	05mb	2001-234	593_ 1434	212	10
153	29 **	42.289122	-70.84383	h10992_vb	14vb	2001-222	065_ 1439	2632	1
154	29 **	42.355255	-70.88036	h10992_mb	05mb	2001-278	341_ 1754	783	20
155	29 **	42.342247	-70.88792	h10992_mb	05mb	2001-238	026_ 1941	1680	12
156	30 **	42.282547	-70.83226	h10992_mb	05mb	2001-275	043_ 1806	722	63

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
157	30 **	42.350316	-70.88917	h10992_mb	05mb	2001-238	010_1556	2328	26
158	30 31 Rk *	42.286732 15 42°17'12.17"N	-70.826759 70°49'36.44"W	h10992_mb	05mb	2001-275	037_1817	1270	7
159	30 **	42.28682	-70.8315	h10992_vb	14vb	2001-222	071_1606	1736	1
160	30 **	42.309786	-70.86223	h10992_mb	05mb	2001-240	245_1759	969	51
161	30 32 **	42.365147	-70.89801	h10992_mb	05mb	2001-228	852_1413	2470	96
162	30 **	42.355636	-70.87971	h10992_mb	05mb	2001-264	397_1910	649	82
163	30 **	42.338563	-70.881	h10992_mb	05mb	2001-235	783_1434	1299	99
164	30 **	42.356394	-70.88908	h10992_vb	14vb	2001-209	029_1648	759	1
165	30 **	42.332368 531	-70.87117 062	h10992_mb	05mb	2001-283	416_2036	54	13
166	30 33 **	42.336071	-70.86851	h10992_mb	05mb	2001-283	292_2114	640	83
167	30 **	42.297718	-70.86439	h10992_vb	14vb	2001-214	082_1412	4325	1
168	30 31 **	42.306586	-70.83691	h10992_mb	05mb	2001-276	194_1327	887	23
169	30 31 **	42.287286	-70.82859	h10992_mb	05mb	2001-275	036_1813	676	101
170	30 **	42.28515	-70.83188	h10992_mb	05mb	2001-300	018_1328	1118	19
171	30 31 **	42.324482	-70.8952	h10992_mb	05mb	2001-241	656_1348	1919	18
172	30 31 **	42.310308	-70.86184	h10992_mb	05mb	2001-240	244_1755	733	59

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
173	31 **	42.312819	-70.86535	h10992_vb	14vb	2001-223	081_1804	1315	1
174	31 **	42.357432	-70.88922	h10992_mb	05mb	2001-236	154_1730	581	85
175	32 <i>Rk *</i>	42.342598 615 <i>42°20'33.41"N</i>	-70.90152 <i>70°54'05.48"W</i>	h10992_mb	05mb	2001-264	349_2129	262	99
176	32 **	42.311296	-70.86655	h10992_vb	14vb	2001-214	083_1349	2054	1
177	32 **	42.283576	-70.83169	h10992_vb	14vb	2001-232	657_2114	729	1
178	32 **	42.355074	-70.88843	h10992_mb	05mb	2001-238	005_1317	7646	81
179	32 **	42.276916	-70.83217	h10992_mb	05mb	2001-275	045_1743	89	15
180	32 **	42.323872	-70.88423	h10992_vb	14vb	2001-224	089_1421	5575	1
181	32 **	42.305972	-70.86756	h10992_vb	14vb	2001-223	082_1825	5198	1
182	33 34 **	42.355419	-70.89994	h10992_mb	05mb	2001-236	082_1502	2666	89
183	33 34 <i>Rk *</i>	42.295409 396 <i>42°17'43.43"N</i>	-70.84022 1 <i>70°50'24.76"W</i>	h10992_mb	05mb	2001-275	208_1944	380	98
184	33 34 **	42.305718	-70.85361	h10992_vb	14vb	2001-232	668_1745	2976	1
185	34 **	42.32794	-70.87879	h10992_mb	05mb	2001-283	393_2007	323	96
186	34 33 **	42.274387 <i>447</i>	-70.83212 <i>08</i>	h10992_vb	14vb	2001-223	099_1358	2721	1
187	34 **	42.345778	-70.8758	h10992_mb	05mb	2001-278	375_1940	163	16
188	35 **	42.364684	-70.87459	h10992_mb	05mb	2001-236	007_1929	1084	84

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
189	35 **	42.331351	-70.87628	h10992_mb	05mb	2001-283	388_2016	14	17
190	35 **	42.316204	-70.88835	h10992_vb	14vb	2001-223	102_2045	6790	1
191	35 **	42.362853	-70.87582	h10992_mb	05mb	2001-236	008_1906	9184	70
192	35 **	42.29807	-70.8583	h10992_vb	14vb	2001-214	079_1555	12168	1
193	35 **	42.284647	-70.85422	h10992_vb	14vb	2001-232	668_1745	10360	1
194	37 **	42.311798	-70.86341	h10992_vb	14vb	2001-223	080_1743	9845	1
195	37 **	42.312201 334	-70.85896 84	h10992_mb	05mb	2001-240	243_1749	1047	10
196	38 37 **	42.334981	-70.8676	h10992_mb	05mb	2001-234	682_1839	2644	33
197	38 **	42.346352	-70.90363	h10992_vb	14vb	2001-225	018_2024	3888	1
198	38 **	42.345532	-70.90212	h10992_vb	14vb	2001-228	307_1716	83	1
199	38 **	42.341764	-70.86972	h10992_mb	05mb	2001-235	667_1519	4457	78
200	38 39 **	42.357497 501	-70.8609	h10992_mb	05mb	2001-234	592_1437	819	10
201	39 **	42.304022	-70.84528	h10992_vb	14vb	2001-232	664_1951	4058	1
202	39 **	42.291281	-70.84298	h10992_mb	05mb	2001-275	131_2008	407	80
203	39 **	42.359488	-70.89417	h10992_mb	05mb	2001-278	323_1903	446	65
204	39 **	42.358275 550	-70.89106 7	h10992_mb	05mb	2001-236	090_1703	2388	98

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
205	39 41 **	42.334691	-70.87218	h10992_mb	05mb	2001-234	702_1959	91	101
206	39 40 **	42.295268	-70.82334	h10992_mb	05mb	2001-275	204_2046	3396	24
207	40 *	42.327345 <i>42°19'38.44"N</i>	-70.87365 <i>70°52'25.13"W</i>	h10992_mb	05mb	2001-237	052_1552	2543	31
208	40 **	42.279795	-70.82917	h10992_vb	14vb	2001-213	100_2003	2446	1
209	40 *	42.3423 <i>42°20'32.28"N</i>	-70.85865 <i>70°51'31.14"W</i>	h10992_mb	05mb	2001-234	676_2035	5078	21
210	41 **	42.351637	-70.88625	h10992_mb	05mb	2001-238	012_1535	1315	15
211	41 <i>Rk</i> *	42.34658+75 <i>42°20'47.67"N</i>	-70.88212+4 <i>70°52'55.69"W</i>	h10992_mb	05mb	2001-238	026_1941	3521	20
212	42 *	42.369139 <i>42°22'08.90"N</i>	-70.89081 <i>70°53'26.92"W</i>	h10992_mb	05mb	2001-228	854_1435	914	31
213	42 **	42.36841	-70.87124 <i>07</i>	h10992_mb	05mb	2001-238	004_1350	1658	10
214	43 **	42.295658	-70.82857	h10992_mb	05mb	2001-275	205_2037	1656	86
215	43 <i>Rk</i> *	42.332989 <i>42°19'58.76"N</i>	-70.86194 <i>70°51'42.98"W</i>	h10992_mb	05mb	2001-237	180_1724	2515	29
216	43 **	42.337438	-70.90539	h10992_mb	05mb	2001-228	715_1952	2055	52
217	43 **	42.369591	-70.86912	h10992_mb	05mb	2001-238	005_1317	1270	31
218	43 **	42.366974	-70.87478	h10992_mb	05mb	2001-238	002_1407	1804	49
219	44 **	42.292659	-70.82765	h10992_mb	05mb	2001-275	212_1906	2734	66
220	44 **	42.324648	-70.90035	h10992_vb	14vb	2001-211	092_1727	11332	1

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
221	44 *	42.349721 <i>42°20'59.00"N</i>	-70.87305 <i>70°52'22.98"W</i>	h10992_mb	05mb	2001-277	377_ 2044	785	76
222	44 45 **	42.322389	-70.86692	h10992_vb	14vb	2001-224	090_ 1354	1451	1
223	44 45 <i>Rk</i> *	42.352024 <i>42°21'07.29"N</i>	-70.88243 <i>70°52'56.76"W</i>	h10992_mb	05mb	2001-278	376_ 1806	14	36
224	45 *	42.339327 <i>42°20'21.58"N</i>	-70.85515 <i>70°51'18.54"W</i>	h10992_mb	05mb	2001-234	684_ 1758	1309	12
225	45 **	42.295327	-70.83504	h10992_mb	05mb	2001-275	207_ 1954	2926	16
226	45 **	42.354701	-70.87937	h10992_mb	05mb	2001-238	015_ 1435	5262	14
227	45 **	42.312759	-70.83883	h10992_mb	05mb	2001-276	181_ 1418	741	84
228	45 **	42.30819	-70.84076	h10992_vb	whvb	2001-213	270_ 1939	5104	1
229	45 **	42.309524	-70.83948	h10992_vb	whvb	2001-223	067_ 1720	252	1
230	46 **	42.326117 <i>29</i>	-70.84221 <i>16</i>	h10992_vb	14vb	2001-227	356_ 1830	1801	1
231	46 **	42.361079	-70.87176	h10992_mb	05mb	2001-238	014_ 1453	4576	85
232	47 *	42.3489 <i>42°20'56.04"N</i>	-70.86678 <i>70°52'00.41"W</i>	h10992_mb	05mb	2001-264	424_ 1943	275	89
233	47 **	42.339737	-70.85732	h10992_vb	14vb	2001-226	046_ 1832	10200	1
234	47 48 **	42.307541	-70.84586	h10992_vb	14vb	2001-222	064_ 1409	5268	1
235	47 48 **	42.306485	-70.83322	h10992_mb	05mb	2001-276	132_ 1256	951	68
236	48 **	42.307896	-70.83365	h10992_mb	05mb	2001-276	134_ 1303	1055	83

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
237	48 **	42.310869	-70.84273	h10992_vb	whvb	2001-213	258_2028	20351	1
238	48 **	42.371396	-70.8622	h10992_mb	05mb	2001-278	336_1324	142	61
239	49 **	42.35051	-70.86511	h10992_mb	05mb	2001-237	068_2049	2588	13
240	49 **	42.341266	-70.86045	h10992_mb	05mb	2001-234	676_2035	4685	64
241	49 **	42.365565	-70.86744	h10992_mb	05mb	2001-278	334_1258	513	25
242	49 50 **	42.331967	-70.86429	h10992_mb	05mb	2001-237	179_1730	659	89
243	49 **	42.34929	-70.86864	h10992_mb	05mb	2001-239	065_1613	1626	59
244	50 <i>Rk *</i>	42.368833 <i>42°22'07.80"N</i>	-70.86446 <i>70°51'52.07"W</i>	h10992_mb	05mb	2001-239	059_1351	866	92
245	50 <i>Rk *</i>	42.3287394 <i>42°19'43.44"N</i>	-70.86498501 <i>70°51'54.05"W</i>	h10992_mb	05mb	2001-239	206_1749	491	23
246	51 **	42.340958	-70.86545	h10992_mb	05mb	2001-235	672_1847	320	13
247	52 **	42.323945	-70.85878	h10992_mb	05mb	2001-239	220_1846	1661	36
248	52 53 **	42.343548	-70.86779	h10992_mb	05mb	2001-235	665_1453	5101	91
249	52 <i>Rk *</i>	42.347736 <i>0</i> <i>42°20'51.83"N</i>	-70.86579 <i>81</i> <i>70°51'56.90"W</i>	h10992_mb	05mb	2001-235	711_1313	1763	9
250	52 53 **	42.361456	-70.87437	h10992_mb	05mb	2001-238	010_1548	1044	16
251	53 52 **	42.342589	-70.85114	h10992_mb	05mb	2001-234	681_1857	1364	9
252	53 **	42.323044	-70.90099	h10992_vb	14vb	2001-211	093_1456	3585	1

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
253	53 **	42.328302	-70.87482	h10992_mb	05mb	2001-283	419_2052	212	73
254	53 **	42.350256	-70.86998	h10992_mb	05mb	2001-239	035_1538	1590	23
255	53 **	42.351376	-70.86896	h10992_mb	05mb	2001-239	034_1528	3403	89
256	53 54 **	42.355789 821	-70.85724 3	h10992_mb	05mb	2001-234	597_1403	140	90
257	53 **	42.349777	-70.87423	h10992_mb	05mb	2001-239	031_1457	1461	81
258	53 **	42.342036	-70.85013	h10992_vb	whvb	2001-212	062_1819	9447	1
259	53 **	42.33237	-70.82604	h10992_mb	05mb	2001-240	341_1710	795	11
260	54 Rk *	42.326472 5 42°19'35.31"N	-70.85074 6 70°51'02.74"W	h10992_mb	05mb	2001-283	507_1304	560	35
261	54 **	42.320702	-70.83039	h10992_vb	whvb	2001-223	275_1812	3316	1
262	54 *	42.361263 42°21'40.55"N	-70.83828 70°50'17.81"W	h10992_mb	05mb	2001-229	564_1515	281	63
263	54 55 **	42.359665	-70.8558	h10992_mb	05mb	2001-234	599_1354	564	87
264	55 **	42.35391	-70.86424	h10992_mb	05mb	2001-239	037_1556	102	83
265	56 57 **	42.324081	-70.82325	h10992_vb	whvb	2001-211	075_1427	12707	1
266	57 **	42.339443	-70.85921	h10992_mb	05mb	2001-234	680_1915	3987	91
267	57 **	42.369638	-70.86191	h10992_mb	05mb	2001-238	072_1512	630	80
268	57 **	42.350666	-70.8755	h10992_mb	05mb	2001-239	027_1405	2058	13

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
269	57 **	42.354705	-70.87025	h10992_mb	05mb	2001-239	028_1419	5497	12
270	57 **	42.371404	-70.85106	h10992_mb	05mb	2001-232	510_2112	280	15
271	57 **	42.351671	-70.87423	h10992_mb	05mb	2001-239	028_1419	4337	12
272	58 **	42.338829	-70.85242	h10992_mb	05mb	2001-234	686_1749	367	89
273	58 **	42.336278	-70.85321	h10992_mb	05mb	2001-277	003_1644	211	82
274	58 **	42.336904	-70.86044	h10992_mb	05mb	2001-234	684_1758	2402	14
275	58 **	42.366177	-70.85791	h10992_mb	05mb	2001-264	283_1301	385	21
276	59 *	42.33716 <i>42°20'13.78"N</i>	-70.84934 <i>70°50'57.62"W</i>	h10992_mb	05mb	2001-277	008_1700	200	32
277	59 **	42.360829	-70.85859	h10992_mb	05mb	2001-234	595_1413	1277	91
278	59 **	42.343304	-70.84627	h10992_mb	05mb	2001-277	272_1711	393	72
279	59 *	42.327682 <i>42°19'39.66"N</i>	-70.85767 <i>70°51'27.61"W</i>	h10992_mb	05mb	2001-239	216_1825	198	70
280	59 **	42.372173	-70.8639	h10992_mb	05mb	2001-238	172_1311	1774	13
281	60 **	42.345602	-70.8538	h10992_mb	05mb	2001-277	384_1743	1797	40
282	60 **	42.343606	-70.85679	h10992_vb	14vb	2001-226	042_1907	8065	1
283	60 **	42.349306	-70.86136	h10992_mb	05mb	2001-235	711_1313	2732	88
284	60 **	42.356606	-70.8482	h10992_mb	05mb	2001-233	610_2104	231	54

Item #	Least Depth (ft)	Least Depth Latitude	Least Depth Longitude	Project	Vessel	Day	Line	Ping	Beam
285	60 **	42.366899	-70.86482	h10992_mb	05mb	2001-238	072_1512	1554	15
286	60 **	42.370525	-70.85797	h10992_mb	05mb	2001-264	282_1244	491	11
287	61 **	42.350336	-70.86667	h10992_mb	05mb	2001-264	425_1945	66	74
288	62 **	42.356874	-70.85613	h10992_mb	05mb	2001-234	599_1354	54	44
289	62 **	42.326367	-70.85851	h10992_mb	05mb	2001-239	217_1829	1281	25
290	64 **	42.356523	-70.84657	h10992_mb	05mb	2001-234	612_1340	790	75
291	64 65 **	42.372189	-70.85898	h10992_mb	05mb	2001-278	481_1339	4	25
292	65 **	42.313757	-70.82988	h10992_mb	05mb	2001-276	238_1546	553	86
293	65 **	42.358197	-70.85469	h10992_vb	14vb	2001-212	038_1804	899	1
294	65 **	42.344928	-70.85421	h10992_mb	05mb	2001-235	674_1859	7220	83

ADDITIONAL RESULTS

Aids to Navigation and Other Detached Positions

All of the aids to navigation positioned during this survey are on location with exception to the following items (also see NOAA form 76-40 in appendix V): This table is available as a MapInfo .TAB file in the electronic submission package at H10992/Plots/Contacts/Atons.TAB.

ATON	Light List #	Latitude (surveyed position)	Longitude (surveyed position)	Distance off location (meters)
R N "10"	12100	42° 16' 10.48"	-70° 52' 13.67"	50
R N "12"	12110	42° 16' 3.72"	-70° 51' 58.68"	20
G C "11"	12105	42° 16' 6.6"	-70° 52' 0.48"	20
G C "9"	12095	42° 16' 14.16"	-70° 52' 14.16"	10
R N "8"	12090	42° 16' 20.28"	-70° 52' 28.2"	0
G C "7"	12085	42° 16' 28.92"	-70° 52' 32.88"	30
R N "6"	12080	42° 16' 30"	-70° 52' 42.96"	10
R N "4"	12078	42° 16' 29.64"	-70° 52' 57"	0
G C "3"	12075	42° 16' 29.64"	-70° 53' 5.64"	20
G C "1"	12073	42° 16' 28.92"	-70° 53' 40.92"	20
GR "HH" Fl (2+1)	11985	42° 16' 27.48"	-70° 53' 51"	30
R N "6"	11990	42° 16' 26.04"	-70° 53' 55.32"	30
R N "8"	12000	42° 15' 58.68"	-70° 53' 44.88"	0
G C "9"	12005	42° 15' 36.36"	-70° 53' 24.36"	20
G C "7"	11995	42° 15' 59.76"	-70° 53' 40.2"	20
R N "4"	11980	42° 16' 40.44"	-70° 54' 13.68"	10
G "3" Fl G 4s BELL	11975	42° 16' 50.52"	-70° 54' 19.08"	20
RG N "CF"	11970	42° 16' 55.56"	-70° 54' 35.64"	10
G C "1"	11935	42° 17' 52.8"	-70° 54' 33.48"	20
G C "9a"	11380	42° 18' 48.96"	-70° 54' 36"	30
G "9" Fl G 4s	11370	42° 19' 0.84"	-70° 54' 31.68"	30
G "7" Fl G 2.5s	11365	42° 19' 4.08"	-70° 54' 8.64"	30

G "3" Fl G 4s BELL	11355	42° 19' 6.96"	-70° 52' 47.64"	20
R "4" Fl R 4s	11350	42° 19' 10.2"	-70° 53' 19.32"	40
R "6" Fl R 2.5s	11360	42° 19' 9.12"	-70° 53' 57.12"	40
Mooring Buoy "CG"	Priv	42° 19' 37.56"	-70° 53' 40.92"	10
R "2" BELL	11415	42° 19' 13.8"	-70° 54' 42.84"	40
G "1" Q G Whistle	430	42° 19' 33.24"	-70° 49' 50.16"	40
G "1HL" Fl G 4s Bell	435	42° 18' 33.12"	-70° 50' 38.4"	50
R N "6"	405	42° 20' 3.84"	-70° 51' 50.76"	40
R N "4"	400	42° 20' 45.6"	-70° 51' 12.6"	30
R "2" Fl R 4s Bell	395	42° 21' 4.32"	-70° 50' 31.56"	60
Mooring Buoy N "CG"	Priv	42° 21' 54"	-70° 52' 21.72"	30
G C "1"	10740	42° 21' 51.12"	-70° 53' 52.8"	90
G C "3"	10745	42° 21' 23.76"	-70° 54' 14.04"	30
Mooring Buoy *	Priv	42° 21' 15.12"	-70° 54' 0.36"	Removed
R N "2"	10785	42° 20' 47.76"	-70° 54' 5.4"	80
G "5" Fl G 4s	10750	42° 21' 5.4"	-70° 54' 34.92"	50

** Defer to MCD Update Service Branch for charting recommendation for Aid to Navigation.*

Ferry Routes

Commuter ferries frequent the survey area, although there are no ferry terminals located within the survey limits. A typical ferry route utilizes the Nantasket Roads Channel in the western-central region of the survey limits, as well as the Boston South Channel in the northwest region of the survey limits. Their return trips are the same routes in reverse. In addition to the commuter ferries, there are seasonal Boston Harbor island excursions vessels to various scenic destinations throughout the harbor. *Concur, no change in charting recommended.*

Submarine Cables and Pipelines

Shore line verification was not required for this survey. Termination points for submarine cables and pipelines were not positioned, and charted submarine cables and pipelines were not verified. Discrete pipelines or cable areas were not observed in the side scan sonar imagery.

E. APPROVAL SHEET

**OPR-A397-WH
Approaches to Boston
Massachusetts**

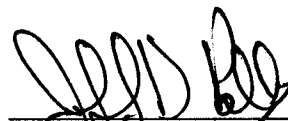
**The Graves to Cohasset Harbor
Survey Registry No. H10992**

Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy. All field sheets, this Descriptive Report, and all accompanying records and data are approved.

This survey is adequate to supersede all prior surveys in common areas, and for application to the relevant NOS nautical charts.


Respectfully,

Submitted:




ENS Jeff D. Kelley, NOAA
Hydrographer, Junior Officer

Approved and Forwarded:



LT Richard T. Brennan, NOAA
Field Operations Officer



Commander Steven R. Barnum, NOAA
Commanding Officer

DANGERS TO NAVIGATION REPORT

Survey Registry Number: H10992

Field Unit: NOAA Ship WHITING
State: Massachusetts
Locality: Massachusetts Bay
Sub-Locality: The Graves to Cohasset Harbor

Project Number: OPR-A397-WH
Survey Date(s): July 27 - November 6, 2001

Soundings are reduced to Mean Lower Low Water (MLLW) using Verified Water Levels. Horizontal datum is NAD 83.

Chart(s) Affected: 13267, 29th edition, February 28, 1998, 1:80,000
13270, 58th edition, October 9, 1999, 1:25,000
13275, 27th edition, July 24, 1999, 1:25,000
13009, 29th edition, July 14, 2001, 1:500,000
13260, 37th edition, July 03, 1999, 1:378,838

DANGERS TO NAVIGATION

Twelve dangers to navigation were discovered during mainscheme hydrography on Sheet H10992, The Graves to Cohasset Harbor.

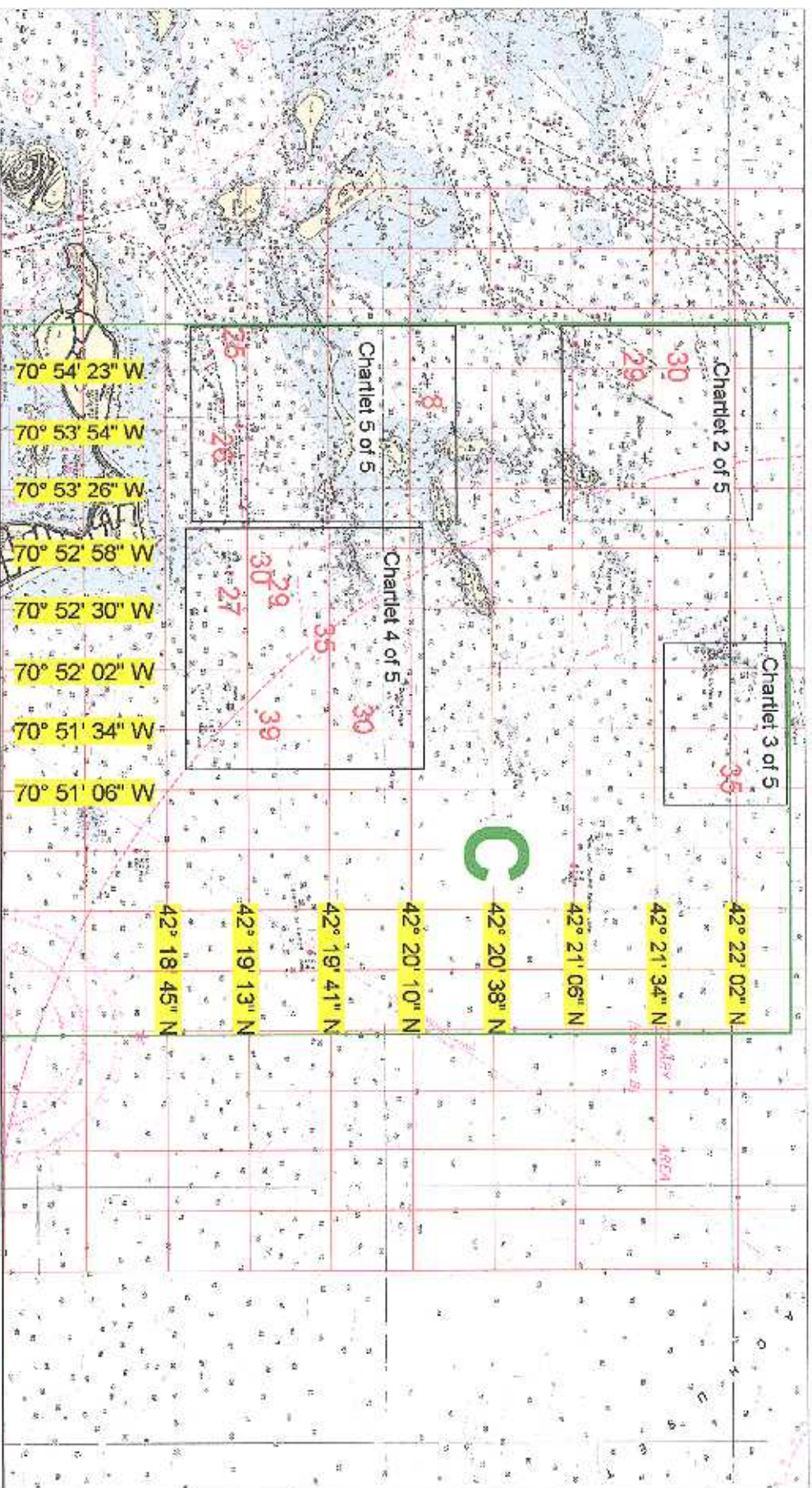
DTON #	LATITUDE	LONGITUDE	DEPTH	Type
1	42° 20 16.296 N	070° 54 06.4476 W	8	Submerged Wk
2	42° 19 07.896 N	070° 54 33.0012 W	25	Sounding
3	42° 19 03.8064 N	070° 53 44.3652 W	26	Rock
4	42° 19 06.078 N	070° 52 33.2364 W	27	Sounding
5	42° 19 22.7424 N	070° 52 37.8624 W	29	Rock
6	42° 21 26.478 N	070° 54 22.7412 W	29	Obstruction
7	42° 19 17.5692 N	070° 52 48.3204 W	30	Rock
8	42° 21 42.0156 N	070° 54 23.4864 W	30	Sounding

SEE PAGE 52 OF THIS REPORT FOR FINAL CHARTING
RECOMMENDATIONS

9	42° 19 52.6008 N	070° 51 38.1276 W	30	Sounding
10	42° 21 59.7312 N	070° 51 09.4932 W	35	Sounding
11	42° 19 39.3888 N	070° 52 16.2732 W	35	Sounding
12	42° 19 19.9308 N	070° 51 34.9344 W	39	Sounding

Questions concerning this report should be directed to the Commanding Officer, NOAA Ship WHITING at (757) 441-6322.

SEE PAGE 52 OF THIS REPORT FOR FINAL CHARTING
RECOMMENDATIONS.



Chartlet 1 of 5

Chart 13270, 58th Edition, October 9th, 1999, Scale 1:25,000, Boston Harbor.

This chartlet has been corrected through Notice
To Mariner date 07/14/2001

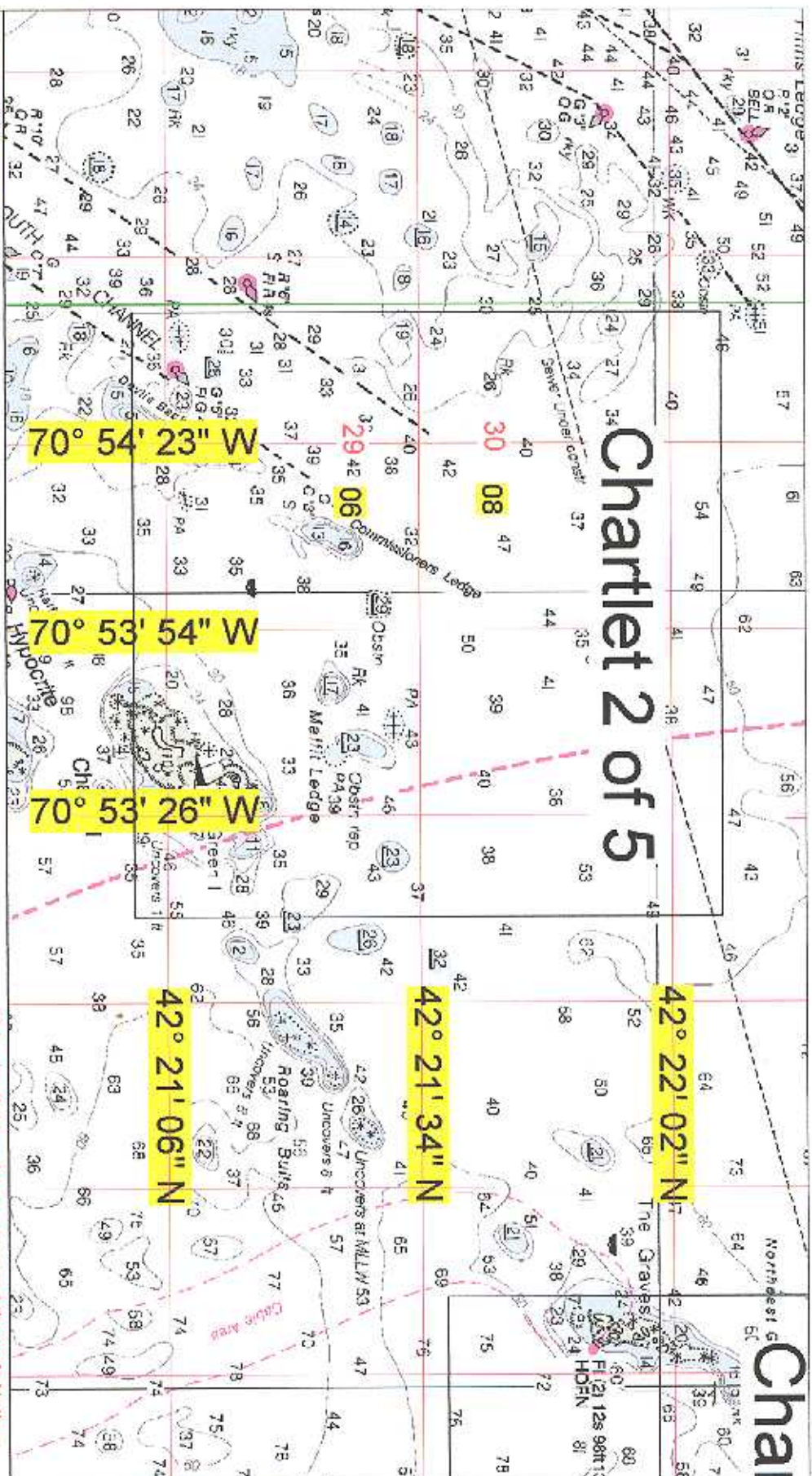


NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

Project CDR-A-397-WH
Survey H70992
State: Massachusetts
Locality: Massachusetts Bay, Massachusetts
Sub-locality: The Graves to Coffins Harbor
Survey Scale: 1:10,000

Sounding Units: Feet
Sounding Datum: MLLW
Horizontal Datum: NAD 83
Projection: UTM 18
Central Meridian: 069° 00' 00"
Scale Factor: 0.9996

NOAA Ship WHITTING
CDR Steven R. Barnum
Commanding
July 27 to
November 6, 2001



Chartlet 2 of 5 Chart 13270, 56th Edition, October 31st, 1999, Scale 1:25,000, Boston Harbor
DTONS 6 & 8

**This chartlet has been corrected through Notice
 To Mariner date 07/14/2001**

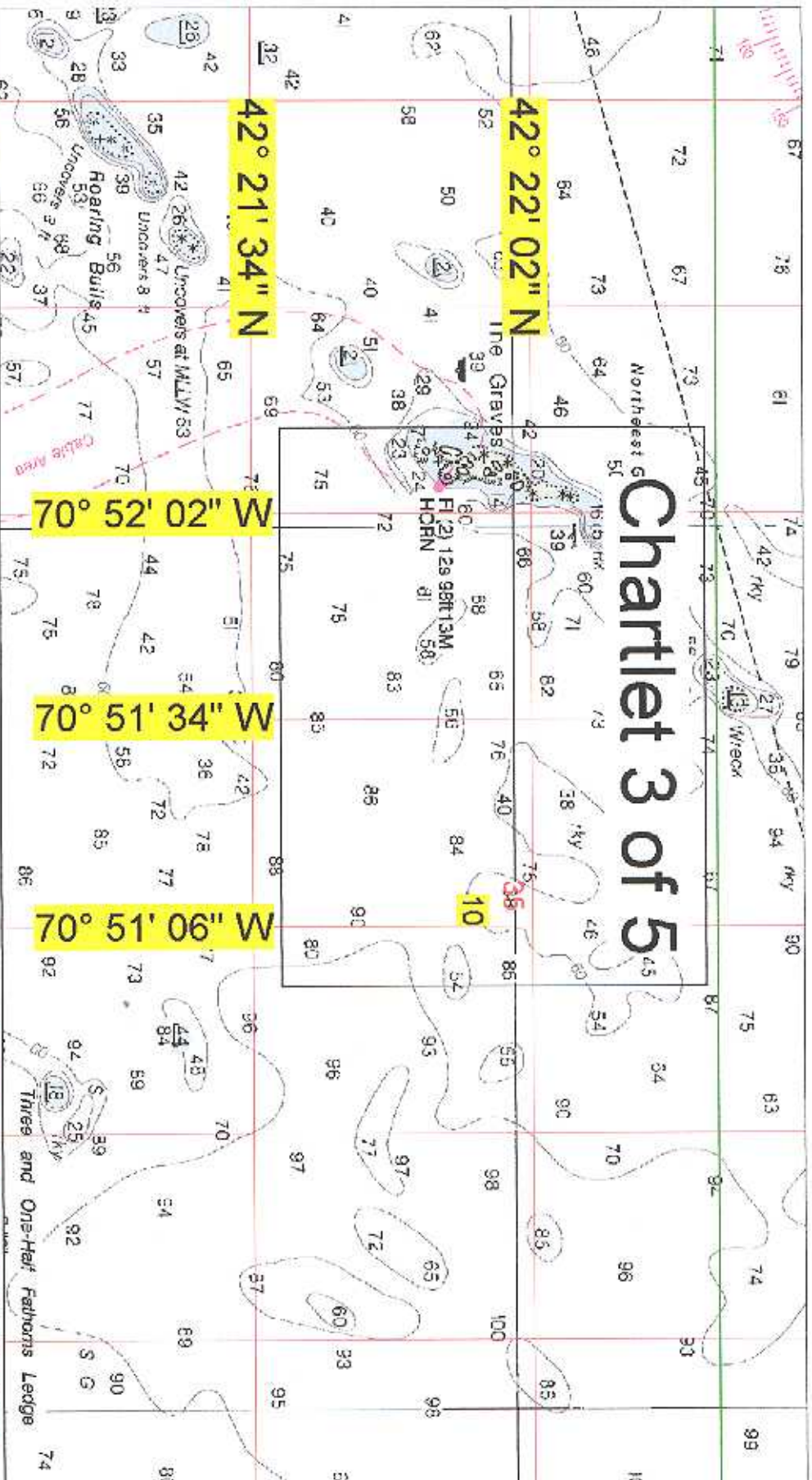


**NATIONAL OCEANIC AND
 ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SERVICE**

Project OPR-A397-MH
 Survey H10952
 State: Massachusetts
 Locality: Massachusetts Bay, Massachusetts
 Sub-locality: The Graves to Cohasset Harbor
 Survey Scale: 1:10,000

Sounding Units: Feet
 Sounding Datum: MLLW
 Horizontal Datum: NAD 83
 Projection: UTM 19
 Central Meridian: 069° 00 00
 Scale Factor: 0.9996

NOAA Ship WHITING
CDR Steven R. Barnum
Commanding
 July 27 to
 November 6, 2001



Chartlet 3 of 5 Chart 13270, 58th Edition, October 9th, 1999, Scale 1:25,000, Boston Harbor, DTON 10

This chartlet has been corrected through Notice To Mariner date 07/14/2001

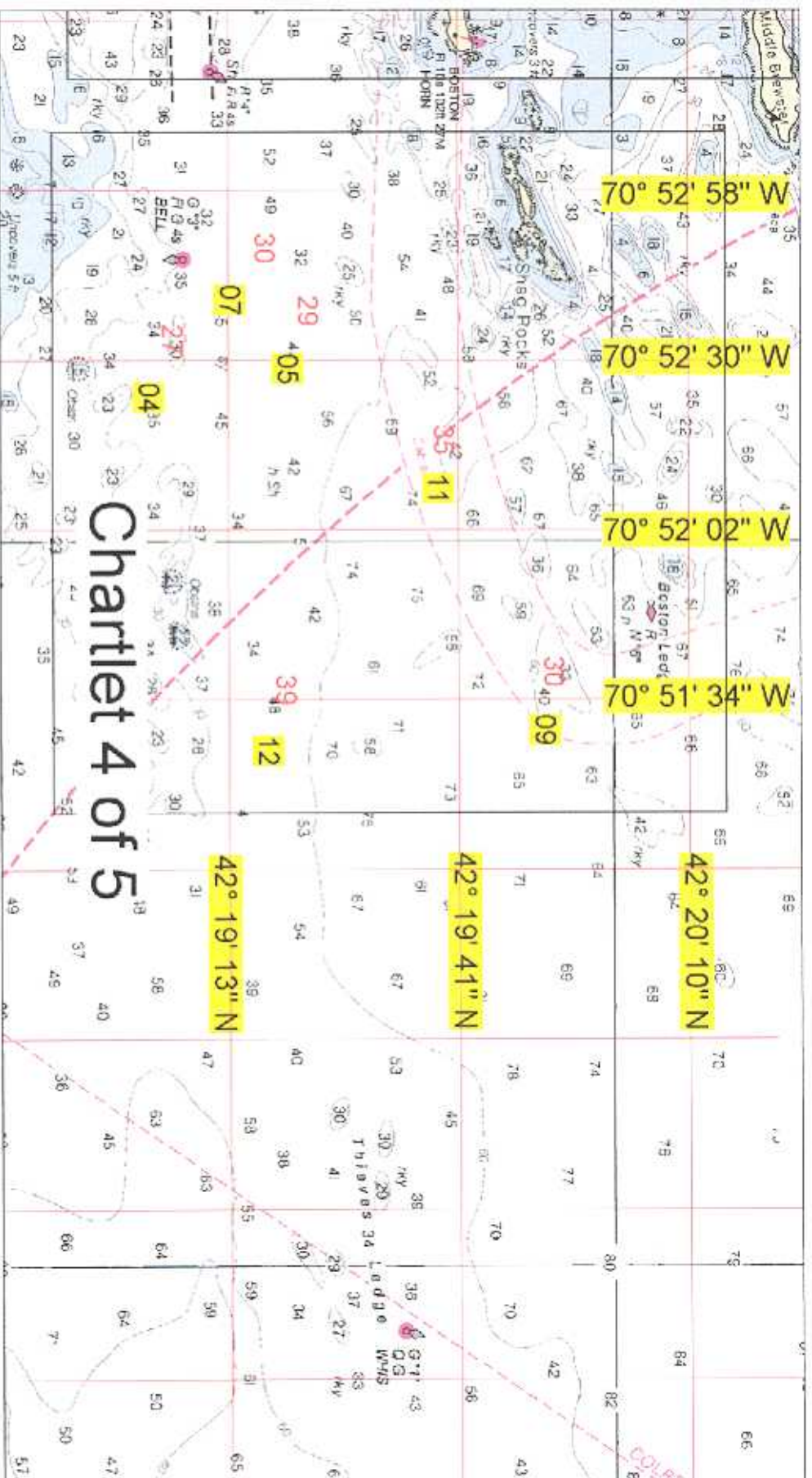


**NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE**

Project: CRR-A397-WH
Survey: H10992
State: Massachusetts
Locality: Massachusetts Bay, Massachusetts
Sub-locality: The Graves to Cohasset Harbor
Survey Scale: 1:10,000

Sounding Units: Feet
Sounding Datum: MLLW
Horizontal Datum: NAD 83
Projection: UTM 18
Central Meridian: 069° 00' 00"
Scale Factor: 0.9996

NOAA Ship WHITING
CDR Steven R. Barnum
Commanding
July 27 to
November 6, 2001



Chartlet 4 of 5 Chart 13270, 58th Edition, October 9th, 1999 Scale 1:25,000, Boston Harbor.
DTONS 4, 5, 7, 9, 11, 12

**This chartlet has been corrected through Notice
 To Mariner date 07/14/2001**

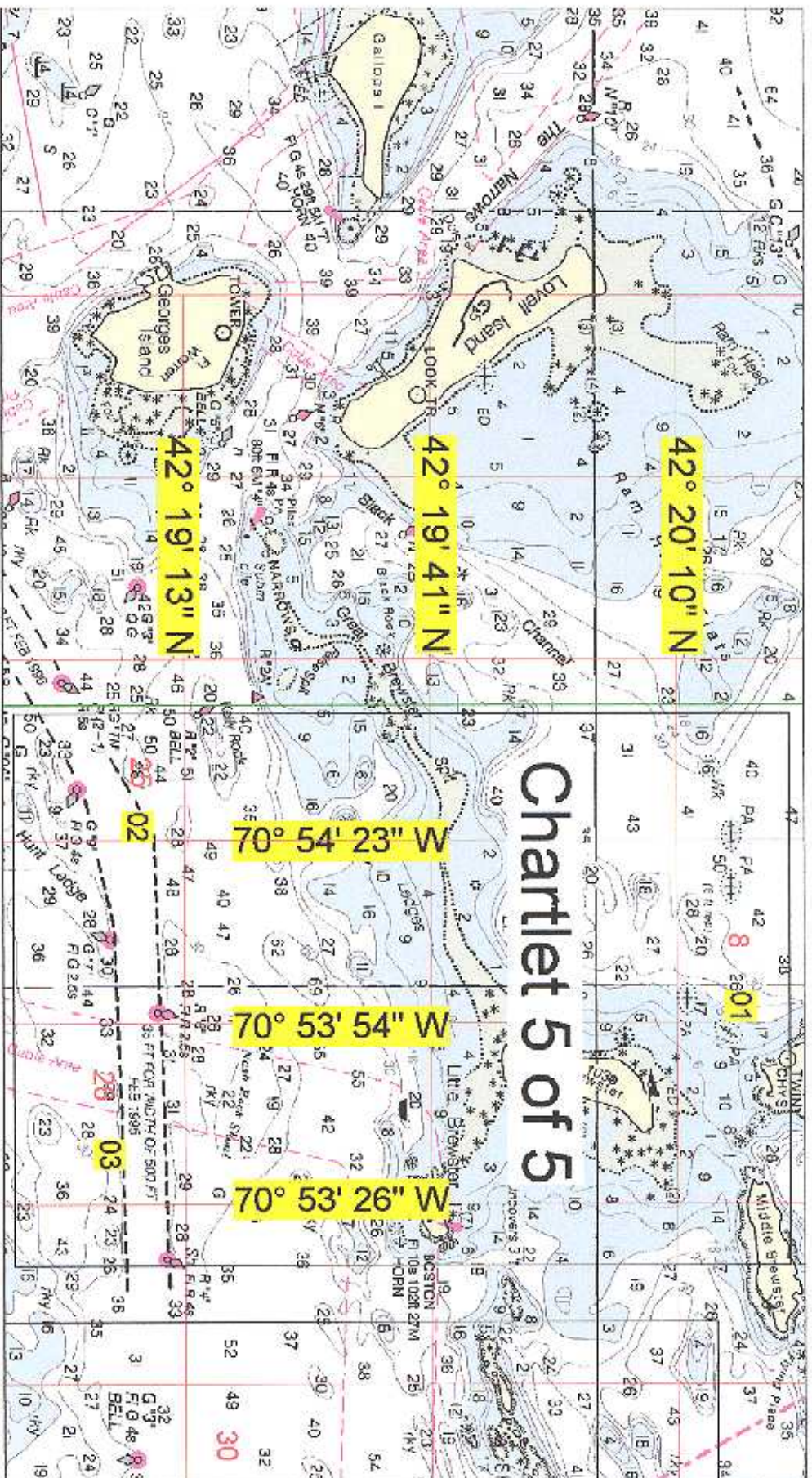


**NATIONAL OCEANIC AND
 ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SERVICE**

Project OPR-A397-WH
 Survey H10992
 State Massachusetts
 Locality Massachusetts Bay, Massachusetts
 Sub-locality The Graves to Cashes Harbor
 Survey Scale 1:10,000

Sounding Units: Feet
 Sounding Datum: MLLW
 Horizontal Datum: NAD 83
 Projection: UTM 19
 Central Meridian: 069° 00' 00"
 Scale Factor: 0.9996

NOAA Ship WHITING
CDR Steven R. Barnum
Commanding
 July 27 to
 November 6, 2001



Chartlet 5 of 5
DTONS 1, 2, 3

Chart 13270, 56th Edition, October 9th, 1999, Scale 1:25,000, Boston Harbor.

**This chartlet has been corrected through Notice
To Mariner date 07/14/2001**



**NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE**

Project CPR-A397-WH
Survey H70992
State Massachusetts
Locality: Massachusetts Bay, Massachusetts
Sub-locality: The Graves to Cohasset Harbor
Survey Scale: 1:10,000

Sounding Units: Feet
Sounding Datum: MLLW
Horizontal Datum: NAD 83
Projection: UTM 19
Central Meridian: 066° 00' 00"
Scale Factor: 0.9996

NOAA Ship WHITING
CDR Steven R. Barnum
Commanding
July 27 to
November 6 2001



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: May 17, 2002

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-A397-WH-2001
HYDROGRAPHIC SHEET: H10992

LOCALITY: Massachusetts Bay, Massachusetts
TIME PERIOD: July 27-November 6, 2001

TIDE STATION USED: 844-4162 Boston Light, MA
Lat. 42° 19.7'N Lon. 70° 53.5'W
844-4525 Nut Island,
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.866 meters

TIDE STATION USED: 844-4525 Nut Island, MA
Lat. 42° 16.8'N Lon. 70° 57.2'W
844-4525 Nut Island,
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.99 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: BOS7, BOS10, BOS11, NA173, NA174

Refer to attachments for zoning information.

Note 1: Provided time series data are tabulated in metric units
(meters), relative to MLLW and on Greenwich Mean Time.

Thomas V. Mero 5/20/02

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION



Printed on Recycled Paper



**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H10992 (2001)**

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

B. AUTOMATED DATA ACQUISITION AND PROCESSING

The following software was used to process data at the Atlantic Hydrographic Branch:

CARIS Hips and Sips 5.2
Pydro 2.9.4
MicroStation J, version 07.01.01.57
SiteWorks, version 2.01
NADCON, version 2.10
I/RAS B, version 7.01.000.18

The smooth sheet was plotted using a Hewlett Packard DesignJet 2500CP plotter.

C. CONTROL STATIONS

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83).

JUNCTIONS

H10991 (2000) to the west
H10994 (2000-2001) to the north

Standard junctions were effected between H10991 (2000), H10994 (2000-2001) and the present survey. There are no contemporary surveys to the south or east of the present survey. Present survey depths are in harmony with the charted hydrography to the south and east.

COMPARISON WITH PRIOR SURVEYS

A comparison with prior surveys was not done during office processing in accordance with section 4. of the memorandum titled, Changes to Hydrographic Survey Processing, dated May 24, 1995.

The present survey is adequate to supersede the prior surveys in the common area.

D. COMPARISON WITH CHARTS 13270 (58th Edition, Oct 9/99)
13275 (27th Edition, Jul 24/99)
13267 (30th Edition, Dec 1/01)

Hydrography

The charted hydrography originates with prior surveys. The present survey soundings are generally within ± 2 ft of charted depths. The following should be noted:

1) The following charted items in approximate locations were neither verified nor disproved:

<u>Item</u>	<u>Latitude(N)</u>	<u>Longitude(W)</u>
Rock (Uncovers 3 ft)	42°22'11.8"	70°51'56.3"
5Rk	42°22'08.8"	70°51'58.9"
Rocks (Uncovers at MLLW)	42°21'27.4"	70°52'38.7"
Rock (Uncovers 8 ft)	42°21'23.9"	70°52'47.2"
Rock (Uncertain depth)	42°21'18.7"	70°52'52.9"
Rocks (Uncovers 8 ft)	42°21'19.2"	70°52'54.4"
Rock (which covers and uncovers)	42°19'31.4"	70°54'25.4"
Rocks (which cover and uncover)	42°18'20.2"	70°50'51.3"
Rocks (which cover and uncover)	42°18'16.3"	70°50'52.1"
Pile	42°18'17.3"	70°50'53.8"
Rock (Uncovers 1 ft)	42°18'09.1"	70°51'03.3"

It is recommended that the above items be retained as charted.

2) A charted rock with a depth of 9ft, (*Tewksbury Rk*), in the vicinity of Latitude 42°20'41.70"N, Longitude 70°52'07.60"W, was investigated by the present survey. A rock with a depth of 10ft (3m), in Latitude 42°20'42.09"N, Longitude 70°52'07.56"W, was located. It is recommended that the charted rock with a depth of 9ft (*Tewksbury Rk*) be deleted, and a rock with a depth of 10ft, (10 *Tewksbury Rk*), be charted.

3) The following uncharted features were located by the present survey:

<u>Feature</u>	<u>Depth(ft)</u>	<u>Latitude(N)</u>	<u>Longitude(W)</u>
Rock	15	42°16'14.64"	70°50'05.06"
Rock	19	42°16'17.42"	70°50'02.60"
Rock	18	42°16'21.30"	70°49'55.94"
Rock	22	42°16'31.39"	70°49'38.36"
Rock	16	42°16'27.70"	70°50'46.15"
Rock	9	42°16'48.39"	70°51'32.46"
Rock	20	42°16'51.08"	70°50'54.71"
Rock	18	42°17'16.72"	70°50'55.18"
Rock	36	42°17'39.51"	70°49'48.91"
Rock	37	42°18'52.38"	70°51'22.92"
Rock	21	42°19'00.58"	70°52'15.52"
Rock	25	42°19'27.62"	70°52'44.72"
Rock	32	42°19'37.14"	70°52'35.04"
Rock	4	42°20'01.33"	70°52'49.42"
Rock	5	42°20'11.40"	70°53'04.18"
Rock	23	42°20'36.46"	70°52'57.58"
Wreck	12	42°20'06.44"	70°53'59.81"
Wreck	35	42°20'26.27"	70°54'11.45"
Rock	79	42°21'20.64"	70°50'25.15"
Rock	40	42°20'06.57"	70°51'14.96"
Rock	39	42°21'59.24"	70°51'25.13"

It is recommended these features be charted in present survey locations.

4) A charted rock with a depth of 25 ft, in Latitude 42°19'07.6"N, Longitude 70°54'44.9"W, originating with survey H10991 (2000) was brought forward to the present survey. The actual surveyed position of the rock is Latitude 42°19'07.63"N, Longitude 70°54'45.26"W. The rock was charted in the wrong location. It is recommended that the charted rock with a depth of 25 ft in Latitude 42°19'07.6"N, Longitude 70°54'44.9"W be deleted, and a rock with a depth of 25 ft (25Rk) be charted in Latitude 42°19'07.63"N, Longitude 70°54'45.26"W.

5) A charted dangerous rock which Uncovers 4 ft, (*Halftide Rk*), in the vicinity of Latitude 42°20'50.8"N, Longitude 70°54'02.5"W, was investigated by the present survey. A dangerous rock which Uncovers 3 ft (0³m), in Latitude 42°20'49.90"N, Longitude 70°54'03.22"W, was located.

It is recommended that the charted dangerous rock which Uncovers 4 ft (*Halftide Rk*) be deleted, and a dangerous rock which Uncovers 3 ft, (*Halftide Rk*), be charted.

6) A charted dangerous rock which Uncovers 1 ft, in the vicinity of Latitude 42°21'03.8"N, Longitude 70°53'26.2"W, was investigated by the present survey. A rock with a depth of 3 ft, (0^m), in Latitude 42°21'04.51"N, Longitude 70°53'26.68"W, was located. It is recommended that the charted dangerous rock which Uncovers 1 ft be deleted, and a rock with a depth of 3 ft, (3Rk), be charted.

7) A charted rock with a depth of 50 ft, in the vicinity of Latitude 42°20'51.7"N, Longitude 70°51'13.7"W, was investigated by the present survey. A rock with a depth of 49 ft, (14^m), in Latitude 42°20'51.09"N, Longitude 70°51'13.54"W, was located. It is recommended that the charted rock with a depth of 50 ft be deleted, and a rock with a depth of 49 ft, (49Rk), be charted.

8) A charted rock with a depth of 27 ft, in the vicinity of Latitude 42°21'41.6"N, Longitude 70°54'31.9"W, originating with H10991 (2000) was investigated by the present survey and determined insignificant. Present survey surrounding depth range from 27-29 feet. It is recommended that the charted rock with a depth of 27 ft be deleted, and the area superseded by present survey depths.

9) A charted rock with a depth of 19 ft, in the vicinity of Latitude 42°20'56.1"N, Longitude 70°54'39.5"W, originating with H10991 (2000) was investigated by the present survey. A rock with a depth of 18 ft, (5^m), in Latitude 42°20'55.99"N, Longitude 70°54'39.56"W, was located. It is recommended that the charted rock with a depth of 19 ft be deleted, and a rock with a depth of 18 ft, (18Rk), be charted.

10) A charted rock with a depth of 13 ft, in Latitude 42°18'54.5"N, Longitude 70°54'26.3"W, originating with survey H10991 (2000) was brought forward to the present survey. The actual surveyed position of the rock is Latitude 42°18'54.03"N, Longitude 70°54'27.38"W. The rock was charted in the wrong location. It is recommended that the charted rock with a depth of 13 ft, in Latitude 42°18'54.5"N, Longitude 70°54'26.3"W be deleted and a rock with a depth of 13 ft, be charted in Latitude 42°18'54.03"N, Longitude 70°54'27.38"W.

11) A charted obstruction with a depth of 29ft, in the vicinity of Latitude 42°21'26.20"N, Longitude 70°54'22.80"W, originates from DTON Report dated February 8, 2002. During office processing the obstruction with a depth of 29ft was determined to be a rock with a depth of 29 ft in Latitude 42°21'26.48"N, Longitude 70°54'22.74"W. It is recommended that the obstruction with a depth of 29ft be deleted, and a rock with a depth of 29ft, (29Rk) be charted in present survey location.

12) A charted rock with a depth of 30ft, in the vicinity of Latitude 42°19'17.50"N, Longitude 70°52'48.40"W, originates from DTON Report, dated February 8, 2002. During office processing the rock with a depth of 29ft was determined to be a rock with a depth of 32 ft in Latitude 42°19'17.57"N, Longitude 70°52'48.32"W. It is recommended that the rock with a depth of 29ft be deleted, and a rock with a depth of 32ft (32Rk) be charted in present survey location.

Controlling Depths

The following present survey depths show conflict within charted Project Depth areas:

Charted Projected Depths (ft)	Latitude (N)	Longitude (W)	Present Depths (ft)
33	42°18'59.9"	70°54'36.3"	32
35	42°19'09.5"	70°54'11.2"	32
35	42°19'09.6"	70°54'04.5"	32

It is recommended that the present survey depths be charted unless other information indicates otherwise.

Dangers to Navigation

One Danger to Navigation report, dated February 8, 2002 was submitted to Commander(oan), First Coast Guard District, Boston, Massachusetts for inclusion in the Local Notice to Mariners, and to the Marine Chart Division, N/CS3x1, Silver Spring, Maryland. A copy of this report is appended to the Descriptive Report.

O. ADEQUACY OF SURVEY

This is an adequate hydrographic/side scan sonar/multibeam survey. No additional field work is recommended.

R. MISCELLANEOUS

Chart compilation using the present survey data was done by Atlantic Hydrographic Branch personnel in Norfolk, Virginia. Compiled data will be forwarded to Marine Chart Division, Silver Spring, Maryland. The following NOS charts were used for compilation of the present survey:

13270 (60th Edition, Sep./03)

H10992

Marilyn Schlüter

Marilyn L. Schlüter

Cartographer

Verification of Field Data

Evaluation and Analysis

APPROVAL SHEET
H10992

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproof of charted data. All revisions and additions made to the smooth sheet during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

nm

Norris A. Wike
Cartographer,
Atlantic Hydrographic Branch

Date: 6/21/04

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Approved:

Emily B. Christman

Emily B. Christman
Commander, NOAA
Chief, Atlantic Hydrographic Branch

Date: 6/23/2004

AWOS/SURFV 8/4/04 SSV

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10992

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED